CHAPTER 8

Supervision in the knowledge economy

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Introduction

Investment in education increases earning potential for the individual. In the United Kingdom it has been calculated that a degree is worth more than A$1 million over a lifetime's work and income. However, the calculations are based on people currently 60 years old (or older) who were likely to have gone through university when only 7 percent of the population participated in tertiary education. Now that enrolment rates are nearer 30 percent in many countries, an undergraduate degree alone is unlikely to result in the same economic advantages. Recent media reports (Schmidt 2004) suggest that a Bachelor of Arts degree (BA) now will qualify a student to do the same type of job that would have been done in the 1970s by people with no school qualification. This increase in demand for qualifications by employers has been quantified in the United States: employment advisors predict a 23 percent increase in jobs requiring a doctoral qualification, 22 percent increase in masterates, 21 percent in bachelors degrees, and 35 percent increase in jobs requiring an associate degree (two year diploma).

There is also a positive relationship between economic development and research capability within a workforce. Porter and Stern (2001) have shown a direct relationship ($R^2 = 0.80$%) between the ability to turn innovation into wealth and the number of scientists and engineers in the workforce. It would follow that an increase in the research capacity of the country results in economic development—and the same should be true for the individual.

For those in the workforce the professional doctorate can appear to be the ideal way to fulfil the double goal of education and research literacy. However, analysis of completion rates suggests that the very type of candidate attracted to a professional doctorate is that most at risk of non-completion of the degree. A study by Martin, Maclachlan
and Karmel (2001) revealed that eight years after starting, only 53 percent of doctoral candidates have completed the degree in which they first enrolled; projections indicate that only 65 percent of students will ever complete. Part time and mature candidates are less likely to complete than young, full-time candidates moving into higher degrees from an honours undergraduate degree.

The traditional PhD is fraught with concerns about the emotional journey of being engaged in doctoral work, and in becoming ‘the other’ (Lee and Williams 1999). Research on the delicate balance between supervisor and candidate (Delamont, Parry and Atkinson 1998), and the impact of the supervisor’s own doctoral experience particularly with reference to supervisory practice (Lee and Williams 1999) has highlighted the complexities surrounding doctoral journeys and supervision. When we take into account the changing context within which higher education operates, the space for supervision is seen to be under threat (Green 2003; Green and Usher 2003). This context for doctoral work appears far more complex when the workplace is included. Yet the Knowledge Economy demands that we structure and manage a new paradigm that has been answered in part by the proliferation of professional doctorate programs. As funding is now being given in many countries on the basis of completion within a designated time frame, it behooves the academy to develop ways of assisting the new type of candidate to successful completion. Our challenge is to maximise enrolments, minimise attrition, and maximise progression without foregoing rigour (McWilliam and Taylor 2000).

This chapter considers implications for management of candidates and training of research supervisors.

**Internal pressures and expanding options**

Professional doctorates in Australasia emerged formally in the late 1980s and early 1990s in response to internal and external pressures. The traditional PhD was considered by some to be too narrow—limited to specific disciplines and research practices, as well as being lengthy, and unmanageable/unpredictable. Furthermore, PhDs were not considered to be sufficiently flexible to cope with the shifting demands within any area of work, academe or industry. Hence PhDs were not viewed as being a suitable vehicle for up-skilling for those in the workforce and intending to remain there. Other drivers were governmental policy and market forces. Given that most doctoral candidates do not move to jobs within academe, but rather move within (or
to) employment sectors beyond higher education, the professional
doctorate is seen as an appropriate mode of doctoral training as it
encourages and extends connections between the university and the
workplace. If people are to be equipped to cope with the requirements
of this century, where rapid change is the only predictable factor,
arguably a range of doctoral training options is appropriate.

The move to expand sites of knowledge production away from
traditional sites located within the disciplines and academic contexts
has been set in theory by Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994). Lee, Green and Brennan
(2000) argue that there is growing recognition of the utility of the
shift to expanded sites of knowledge production and that this has
challenged the monopoly of the PhD with respect to the formation
and credentialing of knowledge workers. This shift is reflected in the
development of a range of options within the PhD itself—such as
PhD by publication, project or performance, as well as in the profes-
sional doctorate development.

The demand for the increasing range of options also came from
employers (Sekhon 1989), and from federal government policy (Reid
1998). In 1990, the Higher Education Council in Australia recom-
manded the introduction of professional doctorate programs in fields
such as education, nursing and accounting. In the same year, the first
professional doctorates in education (EdDs) were introduced
(Brennan 1998). Such policy drivers forced academics to reconsider
what counts as research practice and knowledge production in
applied knowledge sites within the workplace and the professions.

Although external forces certainly played a part in the develop-
ment of professional doctorates, initial drivers came from academia
recognising the need to attract candidates from non-traditional seg-
ments of the market, and to provide articulated pathways for masters
candidates nearing completion. As Reid (1998) notes, ‘the profes-
sional doctorate has become a viable and attractive alternative for
many Higher Degree Research candidates unwilling to commit them-
selves to the singularity of research and scholarship purpose implied
by enrolment in a PhD’. Professional doctorates were seen to be
appropriate for the needs of experienced professionals seeking flexi-
bility and application, as well as the status derived from credentialed
knowledge. Thus, the intersection of the academy, professions and
industry created new market opportunities and fresh options for all
parties.
Professional doctorate candidates

Professional doctorate candidates are a particular type of knowledge worker with a certain range of attributes and thus specific needs. They tend to be older, professionally experienced (entrance requirements usually include several years in the workforce at a specified level), and not necessarily aiming for academic work (Brennan 1998). Candidates tend to engage in workplace related research, often over an extended period of time. They are almost invariably juggling a complex array of commitments including family, study, travel and care of ageing parents. Often such candidates are drawn to the program as a vehicle for close examination of their work practices, as well as for expanded career options and increased remuneration. While they aim to satisfy the demands of the university for a significant contribution to knowledge, they are under pressure to conform to the demands on research practices located in the workplace. Clearly they are under various pressures, some of which are conflicting. The supervisors, who may be more familiar with the traditional model of supervision, must be aware of all of the extra factors imposed in supervising a professional doctorate.

Font or driver?

Academics often have a very clear idea about the differences between PhDs and professional doctorates, and can articulate them in theory. In practice, however, it can be difficult to distinguish between a PhD thesis and that submitted for a professional doctorate. Although in some academic systems (e.g. USA) there is general understanding that the research for a professional doctorate is not the same as that for a PhD, in New Zealand, for example, all doctoral education must be assessed as level 10 (where masterate education is level 8 coursework and level 9 research). The phrase ‘significant and original contribution to knowledge’ is common to guidelines for examiners of both types of thesis; for the professional doctorate, the phrase continues ‘of fact, theory or the epistemology of practice’. In Australia the status of PhDs and professional doctorates depends to a certain extent on discipline area. Although both are arguably equivalent and both are viewed as legitimate, they are certainly different doctoral options. Fitness of purpose should be considered when ‘judging’ equivalence.
Overview of the main distinctions between a traditional PhD and a professional doctorate

Note that the following table attempts to map the main distinctions but must be seen as a generic overview rather than an exact mapping.

<table>
<thead>
<tr>
<th>PhD</th>
<th>Professional doctorate</th>
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<tbody>
<tr>
<td>Single program; thesis</td>
<td>Coursework component or portfolio and thesis</td>
</tr>
<tr>
<td>100% research</td>
<td>Various breakdowns of research/other components</td>
</tr>
<tr>
<td>Traditionally full time; trend towards part time in some disciplines</td>
<td>Normally part time</td>
</tr>
<tr>
<td>Located strictly in the academy</td>
<td>Workplace based connection</td>
</tr>
<tr>
<td>Not necessarily related to practice</td>
<td>Intersecting the academy, the</td>
</tr>
<tr>
<td>May be totally theoretical or</td>
<td>professions and industry</td>
</tr>
<tr>
<td>academic (pure research)</td>
<td>Emphasis on professional practice</td>
</tr>
<tr>
<td>Single discipline base or</td>
<td>Applied notion of knowledge production</td>
</tr>
<tr>
<td>multidisciplinary</td>
<td></td>
</tr>
<tr>
<td>Skills for an academic career</td>
<td>Transdisciplinary</td>
</tr>
<tr>
<td>Mode 1 knowledge</td>
<td>Transferable skills</td>
</tr>
<tr>
<td>Mode 2 knowledge</td>
<td>Mode 2 knowledge</td>
</tr>
<tr>
<td>Individual intake (though may vary in Science)</td>
<td>Intakes of candidates tend to be cohort based</td>
</tr>
<tr>
<td>Pathways for research are largely set</td>
<td>Emphasis on flexibility</td>
</tr>
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</table>

The generic aim of both experiences (also termed an heroic journey) is to produce both a significant contribution to knowledge and a graduate with the capacity for systematic and independent research (Pearson 2002). In order to do this, some of the experiences and achievements must be the same in both types of degree.

Professional doctorates usually start with coursework and so are relatively defined in terms of starting date and management. The regular classes, assignments, due dates and contacts with others arguably make the degree more manageable for those in the workforce. Given the completion rates mentioned earlier, the more management provided by the institution to assist the candidate on the path to completion, the better. Note, however, that the downside of this management, which can become prescription, could be a reduction in creativity, which requires both time and freedom, and is certainly a reduction in personal responsibility on the part of the candidate.
Independent research can be difficult to achieve in a prescribed environment and the delicate balance between domination and neglect (Green 2003) is becoming more difficult to find.

In both types of degree the role of the supervisor is in helping candidates reach their potential, not just trying to ensure that a ‘pass’ is achieved. Seven responsibilities for the supervisor have been identified (Rowarth and Cornforth 2004):

1. knowing what the journey will require;
2. knowing where the journey is heading;
3. knowing when and how to assist;
4. maintaining flexibility;
5. knowing how to effect completion;
6. building the canoe;
7. launching the canoe.

Responsibilities six and seven differ in PhDs and professional doctorates, because of the nature of the candidate. (The professional doctorate candidate has already been in the workforce, and has already created a career of some sort—having done so is a requirement for entrance into most professional doctorate courses. Hence a canoe has been built and launched; the professional doctorate is part of the ‘refitting’ of the canoe.) In contrast, the first five responsibilities are similar but achieved in different ways: whereas in the PhD the supervisor is a font of knowledge and experience, in the professional doctorate the supervisor could be described as the leader of the wagon train.

As the font of knowledge, the supervisor works with the candidate on a one-to-one basis, providing and guiding. Although the candidate rather than the supervisor will be the expert in the area under investigation at the end of the experience, the supervisor has the required experience of the methodology, the general area of the research, and the knowledge of the process through which the candidate must proceed.

Similarly, the leader of the wagon train must know the trail and its potential hazards because, although the candidates will be driving their own wagons, the wagons will be following the leader. The leader must be able to assist the candidates through experience, contacts and instinct (Oswald 2003). The cohort of candidates will follow the train, and supervisors act as scouts for the candidates’ wagons, also riding shotgun.

As the nature of academia changes, however, even in traditional degrees, different types of supervisor are emerging. In the ‘font’
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approach, the emergence of different disciplines and different methodological approaches, plus the increased emphasis on ‘interdisciplinary research’, means that all the expertise required may not reside in one person. Supervisors appointed to provide methodological expertise are now common, with the discipline-based expertise residing in another person.

Yet another type of supervisor, increasingly common where a cohort of students is involved, as in the professional doctorate, is the ‘administrative supervisor’. The role of this supervisor is to remember the due dates and requirements of the group, rather than provide any discipline-related input. At the beginning of candidature, the prime role of the administrative supervisor is to ensure that the candidate is engaged in the academic process. Experience suggests that the most important component in successful supervision is mutual respect and confidence in the ability of the other partner in the candidate–supervisor relationship. For candidates coming into the professional doctorate from the workforce, most of whom have not had the recent experience of working with a supervisor, the administrative supervisor gives a point of academic contact while the candidate identifies their potential principal supervisor.

The most common difficulties identified in doing a research degree have been described (Lillis 2000) as:

- interpersonal difficulties;
- supervisor absences;
- failure of the supervisor to assist in the development of the proposal;
- failure to hold regular meetings with the candidate;
- delays or omissions in the provision of software or equipment; and
- delays or omissions in the provision of feedback on thesis drafts.

Some of these difficulties are overcome with the cohort approach common in a professional doctorate, and the fact that both parties are mature adults who have set the guidelines in advance. Knowing the most common problems that candidates face along the doctoral journey can assist in developing strategies to avoid or overcome such challenges.

In the debate on the relative merits of the different types of degree, the factor of the cohort should be considered. The traditional and relatively lonely experience that many PhD candidates undergo is
not the model for the professional doctorate. Although some candidates at a distance say they had little input from their wagon train leader or scouts, the very fact that they are in a work environment means that they are not isolated. The wagon train approach may have major benefits in the future as networking and cooperation increase in importance.

With the current emphasis on economic development, all socially developed countries are encouraging the workforce to ‘up-skill’, on the principle that an educated workforce is the fundamental requirement for a globally competitive country. It is likely that professional doctorates will become increasingly popular in the future because of their workplace relevance. The concept that the professional doctorate educates those ‘in work for work through work’ is attractive, but there is some debate about the type of experience in the different degrees. Informal discussions with mature professional doctorate candidates suggest that many of them believe that they consolidate knowledge rather than learn new knowledge. If this is the case, there must be funding and policy implications. It also has implications for the value of the doctorate, as all doctorates must contribute something unique or significant. Such a contribution must involve learning: the development of new ideas/theories/practices. If this is not the case, there is much to be concerned about. However, it may well be that the debate is more about differences in perception during the doctorate (students wondering as they proceed, supervisors pushing them to find and make that unique contribution), or perhaps a matter of semantics. This is an area of research that should be explored, as others believe that learning is a paramount factor in professional doctorates.

Arguments could be made for both increasing and decreasing funding and time. If professional doctorate candidates are:

- consolidating knowledge, then funding and time can be reduced—but would what they then achieve be a doctorate?
- in the workforce, then funding must be increased as compensation for the opportunity cost of up-skilling; alternatively, it could be decreased because the candidate is on salary. The market will be the main influence in this, and is likely to vary according to discipline;
- part time, then increased time for completion must be allowed because of work and family commitments. However, lengthy studies lose currency, in terms of both research and relevance to the candidate and their goals.
Perhaps the most vexed question is that of entry qualifications. In order to ensure the same exit quality and hence parity of esteem for the two qualifications, the same entrance criteria are commonly used. In Australia and New Zealand, entry into PhD programs is usually honours (level 1) or a masters degree including a significant research component. Entry to professional doctorates is largely the same, though some degrees specify a minimum number of years (often five) of relevant work experience.

What is certainly true in most cases for professional doctorates is that if the candidate is not in academia, he or she will need considerable assistance with ‘getting up to speed’. Add to this the other concerns, and clearly the candidate will require more input from the supervisor; hence the models for supervision, although they will have some similarities, will also be different, although the differences may be more in quantity than in quality.

What is always true is that supervisors will need to know their students as individuals. There will be differences in ‘student type’ as well as in skills and experiences that are brought into the program and the relationship. Time is needed to know the student, and to know their strengths, challenges, needs and so on.

**Tests of hazard**

The professional doctorate intersects the academy, the profession and the workplace (Lee, Green and Brennan 1999). Consequently candidates, and supervisors, need to be skilled in the language and attributes of all three places, and the professional doctorate program should be supported in such a way as to enable candidates and supervisors to move from one context to another—not doing so jeopardises the likelihood of the professional doctorate being viewed as a positional good. Clearly the professional doctorate program must support candidates in deriving a credential that is seen to have status and credibility within both academia and the labour market. Furthermore, the credential must be gained within a prescribed time frame, which means that the candidate must get started quickly, cope and complete.

Timely successful completion is the element of the Australian Research Training Scheme (RTS) (implemented in September 2000) that impacts most on the work of supervisors with candidates. The introduction of the Performance Based Research Fund in New Zealand in 2004 is likely to create similar impacts. Although the professional doctorate program is well-positioned with a well-structured coursework plan, regular progress reviews and presentations, delays
still occur due to life imperatives intervening. Consequently candidates move in and out of focused study. Although there are periods of intense research, there are also periods when nothing seems to occur, and reflection is almost certainly absent. Systems for enabling focused, sustained effort must still be developed; the supervisor has to be aware of the hazards the candidate is experiencing, and be able to suggest ways of clearing them.

Another hazard occurs where there is a transition from coursework to sole concentration on research, which can occur at various stages (e.g. one third of the way through the degree as in New Zealand, or up to two-thirds of the way in some programs in Australia). (Note that some programs in Australia have addressed this hazard by making the coursework and the thesis work parallel for the most part.) The shift is associated with an increase in independent work, with reduced contact with the rest of the candidates in the wagon train. The change in networks and structures, and an increased reliance on supervisors rather than on a team of academics, while welcomed by some who feel ready to escape the constraints of coursework (regular meetings, deadlines, classes, thesis groups), tends to put unforeseen strain on many. The shift requires greater self-motivation and confidence than in the earlier stages. Although research results from studies in Britain suggest that research students feel more included in the department than do those in coursework (Humphrey and McCarthy 1999), for the professional doctorate candidate the reverse is true, reflecting their full-time work commitments.

Requirements for attendance at events can be difficult, and effective supervision and monitoring of progress is crucial if timely successful completion is to occur. Supervisors need to be aware of the stresses of this period, and watchful for signs of ‘lapses’ in focus. Closer scrutiny of supervisory practice as well as candidate progress is now a fact of life in both Australia and New Zealand, since funding depends upon completions. ‘At risk’ procedures are now in place which means that a harder line is being taken with candidates who fail to show adequate progress. Close monitoring of progress and completion rates will lead to an increased understanding of the needs of both supervisors and candidates (Leder 1998); once needs are known, we should be in a better position to help candidates cope and complete.

**Achieving completion**

Program management is key to assisting a candidate enrolled in a doctoral degree (or any degree), to achieve successful completion, but
is also foreign to many academics who have been through the more traditional ‘hands off’ supervision approach. Goal setting should be followed by the explication of tasks. Assisting the candidate to break down goals into tasks allows achievements to occur at regular intervals. This is important for motivation—the candidate must feel that progress is being made. Detailed timelines—even down to a day by day level—can also help to focus the candidate and provide a way to monitor progress towards completion. This kind of planning goes well beyond the normal type of Gant chart planning that Higher Degree committees often want, but should not become an end in itself.

Shadowing can be useful for all candidates and involves heavy duty tracking of progress. Supervisors and postgraduate coordinators have a prime role in shadowing candidates in order to track development along the research journeys. Such tracking can occur in various ways, such as:

- weekly updates by email;
- regular face to face meetings with supervisors;
- review panels in accordance with the faculty procedures;
- postgraduate conference presentations;
- conference presentations; and/or
- faculty seminar presentations.

For the professional doctorate candidate, short term completion scholarships can be used to fund part-time candidates for time out from work to achieve major steps in the research journey. Crucial tasks that are best done in a block of time, such as data collection and/or writing up, can be well supported by institutional scholarships. Failing this, some candidates have long service leave owing and put the time to good use for completion of their thesis.

Giving candidates a space in which to work can be important in helping focus. Most full-time candidates are lucky enough to be catered for in this way; part-time candidates are not, but it may be possible for the supervisor to make the case that resourcing the professional doctoral candidate will be beneficial in terms of completions. Having a work space away from home can be important in treating research seriously and as a ‘job’ in which office hours (at the very least) are maintained, and where weekends can easily be spent free of well meaning but distracting family and friends. The candidate should be assisted to create a work routine that suits commitments.
The establishment of writing groups can assist those candidates who need the additional support and pressure to complete, as well as feedback from a group of colleagues. Regular meetings in which ways of working are agreed upon from the outset can generate much commitment to, and motivation for, writing. Decide on how drafts are to be shared, the kind of feedback that will be provided, issues of honesty, trust and commitment (to sharing, to constructive critique), as well as how turns will be taken to produce some writing to the group. Some faculties bring in writing experts to run such groups. Alternatively, specific workshops based on expressed need are useful.

Supportive networks are vital for all candidates, irrespective of the nature of the degree, and whether part-time or full-time. Candidates should be encouraged to meet others when they can—in the staff room, the postgraduate room, the seminar series, the late night lectures, and the structured programs (induction, targeted workshops, library sessions, research methods and so on). Research environments will motivate, support and help in the completion process; part-time candidates need more encouragement to become involved than do traditional students, so it is important to ensure that a proportion of networking events are held after work. Such networks are useful in terms of keeping in touch with others (avoiding isolation), and gaining support, but also in having opportunities to celebrate successes. Celebration is important for candidates to acknowledge the passing of a milestone. Candidates should be encouraged to celebrate achievements with others, but not to then rest on their laurels and lose momentum. Supervisors and wider networks can support successes but also set up the next challenge so that the journey remains focused and on track.

Many completion strategies are appropriate for supervisors in all types of degrees to adopt. It may be that the biggest difference in supervision is the quantity of input required for those in professional doctorates to enable them to fulfil the requirements of the intersection of the academy, the profession and the workplace (Lee, Green and Brennan 1999). Even if this difference is not so, it is clear that supervision of doctorates, regardless of degree framework, demands much focus and diligence on the part of the supervisor, but also steady progress from the candidate. Without a strong work ethic and time to enable the work to occur (on the part of both supervisor and candidate), the doctoral journey may well be hazardous.
Expectations and reality

Increased supervision might be required in professional doctorates because students expect more assistance—they know that they have been out of research (or may never have been in it) and are in full-time work, so the university will provide support mechanisms. It is clear, however, that traditional PhD students are increasingly expecting similar support, and for the supervisor the main difference between the two types of students may be simply in the frequency of meetings reflecting full-time versus part-time rather than professional doctorate or PhD per se.

Despite attempts to sketch some of the main distinctions, in the process the reality is that the differences are nebulous. For the supervisor, research training and support must include:

• program management;
• reconsideration of research;
• communication that counts;
• strategies such as writing groups;
• short-term scholarship programs; and
• supervisor professional development initiatives.

It is also clear that further research into professional doctorates (e.g. theorisation/practice based implications) is required.

Conclusions

The imperatives for research supervisors are similar, regardless of the form of doctorate being supervised, but the relationships to manage are different in the PhD and professional doctorate. The latter is likely to involve industry partners, the students’ workplace, family and so on, thereby adding extra dimensions. A further dimension is added by the professional doctorate coordinators and other advisors on the program, particularly those associated with coursework.

Arguably professional doctorates are viewed as a necessary form of doctoral training, making a significant contribution to the knowledge economy. It therefore behooves all tertiary education institutions to make an effort to accommodate the training within the ranks of academe—which means finding ways of assisting non-traditional candidates to complete successfully without lowering the standards of achievement or ‘significant contribution to knowledge’.
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