

chapter 6

SUPERVISING: PROJECT, DISSERTATION AND THESIS GUIDANCE

The independent research experience] changes people, not simply in terms of technical expertise and knowledge in their field, but also in terms of the ways they value themselves and their work... A self forged through tackling the difficulties of research, especially when stress from other sources is high, is a new self. So is the self that overcomes the doubts about ability to do the work (Hazel Francis cited in Graves and Varma, 1997: 18).

In this chapter, we look at the role of supervising in higher education, particularly how it encourages independent learning, as well co-operation, collaboration and the development of new roles and relationships. Supervising has relevance to teaching in general as well as projects, reports, dissertations and theses where maintaining the balance between support and independence is crucial to allay anxiety while fostering independence. The emotional is stressed as well as the greater intellectual demands in contributing to personal and professional identity. We discuss problems in assessment in relation to the need for individuality, creativity and originality.

INTRODUCTION

As we discussed in Chapter 2, research on conceptions of learning suggests that the most sophisticated conception of learning is 'changing as a

person'. In undergraduate courses – where much of the research on student conceptions has focused – the aspect of study with perhaps the most potential to change people is the project or undergraduate thesis. The masters' dissertation¹ offers even greater opportunities for change, and the PhD thesis has the greatest potential. Wherever an educational experience offers great promise, however, there can be great disappointment. Such disappointment may be traced directly to shortcomings in the supervision (Rudd, 1986).

By 'supervision', we are referring to the process by which a teacher directs or guides a student – whether at the undergraduate or graduate/postgraduate level – through a significant research or clinical project, thesis or dissertation. As such, supervision has three widely accepted functions – support, education and management – which have generally been seen to be unidirectional processes (the supervisor provides; the student receives), although this may be changing (Carrington, 2004). Although we draw some ideas from the vast body of research on 'mentoring', a concept used more extensively in the USA, our focus here is on the supervisor's facilitation of the project as a teaching genre, and the student's experience of that project. The projects we refer to are extended research projects, which often serve as the final assessment of a student's programme. While the descriptions of these projects may vary, they share certain characteristics:

- They are intended to be learner-focused (students usually determine their own research questions, although the supervisor might shape the focus and methodology).
- They promote independence and self-directed learning (students are expected to complete the work on their own, but the supervisor may guide the process of data collection, analysis and interpretation of primary and secondary data, depending on the student's expected level of expertise).
- They provide students with a substantial and deep exposure to a research area that gets beyond normal coursework (Todd et al., 2006).

Although interpersonal skills are quite important when conducting seminars and even when lecturing, in supervision (as to a large degree in personal teaching) a clash of personality or even insensitivity towards the feelings of the student can lead to disaster. A supervisor who is willing to help with the emotional turmoil of the process, sharing its pleasures and pains, is as important for researchers as is the tutorial supervision of their work (Grant, 2003). As Francis (1997: 19) explains: 'most is gained from the research process by finding a balance between individual drive and autonomy and the engagement and support of others.'

In this chapter, we consider the key issues in supervision, as well as the roles, responsibilities and expectations of supervisors and students, and explore some common problems with supervision. We then consider supervision as it relates to specific elements of the learning matrix, concluding with an examination of the often thorny issue of assessment.

KEY ISSUES OF SUPERVISION

We have frequently stressed the importance of achieving a balance between providing support, encouraging independence and developing the interpersonal. In supervising, this is much more than an intellectual achievement on the part of the supervisor. Supervision involves a constant interaction between the supervisor and the student and, since this is a one-to-one relationship, crude stereotypes of each other can destroy deeper learning. With larger groups, to some extent, we have to work with generalizations rather more, even if they do not amount to stereotypes. But with supervising, sensitivity to individual differences, the ability to accommodate these differences and to accept changes in mood, motivation and even intellectual approach are crucial to the developing relationship as well as to the quality of the research.

In many respects, the supervisory relationship offers a useful model for teaching in general. While supervisors might transmit information on occasion, they are more likely to expect students working on an independent project to engage deeply in the learning process and construct their own knowledge. They are more likely to view themselves as facilitating learning and expect students to embrace and 'own' their research.

Yet, supervisors do not usually receive much training or instruction on how to supervise effectively, and may often rely on their experience being supervised, which may not have been particularly effective or positive (Brew and Peseta, 2004; Calkins and Kelley, 2005; Calkins and Light, 2007a). This is starting to change, however, with more faculty programmes and short courses on effective supervision practices and the professional development of research supervisors (Pearson and Brew, 2002; Brew and Peseta, 2004).

Relationships and roles in supervision

The relationship between supervisors and their students is complex and varied, and the roles that each takes can change, especially through an extended period of supervision. Table 6.1 sets out a range of different roles and relationships which supervisors and students might take.

Table 6.1 *Range of roles and relationships between supervisor and student*

Supervisor	Student
Director	Follower
Master	Servant
Guru	Disciple
Teacher	Pupil
Expert	Novice
Guide	Explorer
Project manager	Team worker
Auditor	Client
Editor	Author
Doctor	Patient
Senior partner	Junior
Professional colleague	Colleague
Friend	Friend
Mentor	Mentee
Adviser	Seeker
Counsellor	Customer

Source: Adapted from Brown and Atkins, 1988: 121

At times, any of these might be appropriate, but the important and difficult issue is achieving the right balance over the whole supervisory period. Each one relates to a reciprocal relationship on the part of the student. Some of these may not feel like acceptable relationships but they are helpful in reflecting on and reviewing our relationship with our students. They help us ask: are we flexible in the way we are meeting the needs of the particular stage of supervision?

In an in-depth research inquiry into the nature of supervision, Gardiner (1989) focused on trying to understand how supervision styles relate to deep and surface approaches to learning, and how conceptions of knowledge relate to the approaches to learning and styles of teaching discussed earlier (in Chapters 1 and 2). From his studies, he developed a complex model identifying three levels of interaction. The first level focuses upon the content of learning and is linked to reproductive conceptions of learning. At this level, 'Supervisors believed that the right way to supervise was to reflect the hierarchy casework relationship with clients, and to maintain control, not only of what the student should be learning but also the single right path to achieve it' (1989: 131).

At the second level, the focus is on the process of learning with recognition of diversity and active involvement of the learner in the learning process. There is a shift from the reproductive to the constructive/transforming conceptions of learning. Students take increasing responsibility for setting the agenda, for supervision and for assessing their own work and learning.

The third level focuses on meta-learning, learning to learn and the demonstration of versatility. Here students and supervisors use their own learning processes as the basis (content) of further learning (process) of a higher order. Gardiner (1989) suggests that this meta-learning can promote transfer of the content and process of learning to contexts other than those in which the original learning arose.

Matching of levels between supervisor and student is very important, especially if the supervisor is operating at the *reproductive* level (level 1). The effect of mismatches, however, is dependent on the level at which the mismatch occurs. If students and supervisors are capable of operating at the highest *meta-learning* level, they are able to reflect upon and discuss the way in which they are interacting in a mutual engagement which should be able to adjust to any mismatches. If they are not, the potential for dialogue and engagement about both the learning and the interaction is reduced.

Gardiner's work has interesting parallels with Schon's (1983, 1987) two models of interpersonal behaviour. In the first model, the values are 'to achieve the object as I see it', 'to strive to win and avoid losing' and 'to avoid negative feelings'. Its strategies include unilateral control of the task and the environment and unilateral protection of self and others. It is a very restrictive, 'single-loop' model of interaction where assumptions are not questioned and private dilemmas are concealed.

The second model is a 'double-loop' model in which the participants are learning about the values and assumptions that drive their own and/or other people's behaviour. In this model learning involves the governing variables that underlie behavioural strategies. Participants are willing to share difficult and sensitive matters that may be getting in the way. In supervising students we need be willing to express disappointment with each other's performance. Both sides need to explore how far it is possible to share issues of doubt and mistrust that can so easily remain private and undisclosed.

Styles and Radloff (2001) provide another way to think about the supervisor-student relationship through their self-regulatory synergistic model of supervision (see Figure 6.1). While this model was created to understand the postgraduate experience, its principles can be easily applied to the undergraduate experience of supervision. Self-regulation encompasses learner autonomy, self-efficacy, adaptability and a sense of control over the learning that is achieved. This model integrates four important elements of the supervised research experience:

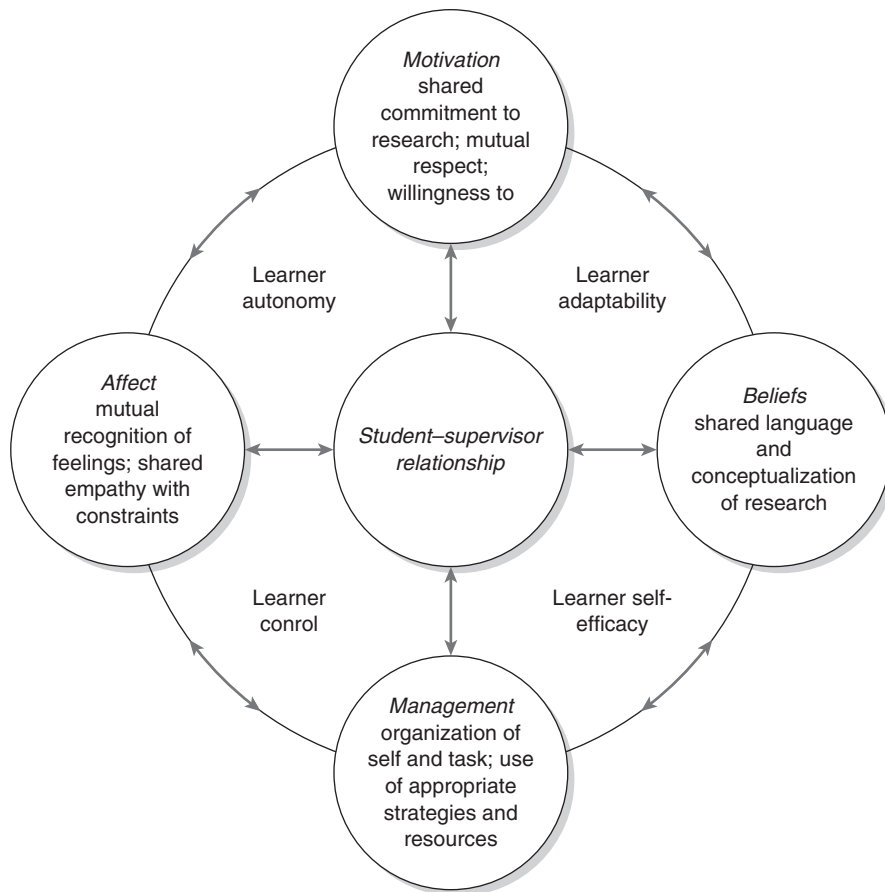


Figure 6.1 *Self-regulatory synergistic model of supervision*

Source: Adapted from Styles and Radloff, 2001

- **Motivation:** shared commitment to the research, a mutual respect, the willingness to learn.
- **Beliefs:** requires students and supervisor to share language and conceptualization of the purpose of the research project.
- **Management strategies:** organization of self and task; use of appropriate strategies and relevant resources.
- **Affect:** recognition that positive and negative changes in supervisor and student's feelings will occur; empathy with constraints and problems each person faces.

Although these aspects may not be harmonious at the outset, ideally they will develop synergistically over time (Styles and Radloff, 2001).

Responding to student problems and challenges

Students bring many diverse problems and challenges to their supervisors that emerge from all areas of the learning matrix (see Chapter 2). Each problem must be engaged on its own terms; there are no necessarily 'right' ways to respond nor 'one size fits all' solutions. Teachers must make professional judgements in the way they handle or address a student challenge. Figure 6.1 provides a continuum of the kinds of approach which supervisors might choose when students encounter problems. They range between taking the problem out of the student's hands and solving it to sympathizing but not addressing the problem at all. Each response has its advantages and disadvantages, and each can be appropriate or inappropriate according to the situation.

Supervisors may seldom take either of the extremes but, on occasion, may come quite close to one or the other. Some may listen to the student and offer advice, provide the solution or tell the student where to find it. Occasionally this might seem to be a reasonable thing to do but, if this becomes the general pattern of the supervision, then it may impair their student's ability to learn independently. On the other hand, other supervisors might reflect back to the student what he or she seems to be saying, in an attempt to help the student to examine the implications and come to terms with the problem. While this may be sometimes a good way of encouraging independence, if the meetings are always like this it may actually discourage the student or send him or her on the road to failure.

Generally, supervisors feel they should be operating somewhere near the supportive end of the scale, getting students to list possible solutions and suggest bases upon which they feel the choice should be made, and then exploring any difficulties the student might have in making the choice (Woolhouse, 2002). In practice, however, supervisors find themselves confined to one or two kinds of response, often offering advice and suggesting what the student might do. In their anxiety to retain control lest students make mistakes, they may persist with this approach long after its sell-by date.

Supervisors and teachers will better serve themselves and their students by developing and sustaining a wider repertoire of responses to employ as the circumstances require. As one supervisor from the social sciences commented on his role in the undergraduate thesis process: 'I think that my role isn't [to get involved in the writing of content] but you're looking for ways to facilitate what they're doing and that might mean, for some of the weaker students, some direct intervention' (cited in Todd et al., 2006: 169).

THE INTELLECTUAL DIMENSION

Establishing learning contracts

We have stressed, especially in supervision, that support is essentially concerned with helping students to learn and make decisions, rather than transferring knowledge and deciding for students. All innovation, change and creative work involve risk-taking, but risks are very difficult to take if students are feeling very insecure. At the undergraduate level, projects are perhaps the only area where students may consciously feel they are taking risks. But even graduate students may not be very practised at relating to their lecturer as a supervisor who is not going to do all the explaining and clarifying and directing that they may have come to expect. In recalling her own postgraduate experiences of being supervised, one teacher recalled painfully: 'I was basically just thrown into the deep end... I had to teach myself, had to give myself my own kind of emotional and intellectual support, and generally they were quite aversive experiences where I was basically left alone' (Grant, 2003: 176).

At all levels, setting ground rules or even learning contracts (Phillips and Pugh, 2005) and clarifying them is an important first step. It should not be assumed that because these have been carefully discussed at the beginning they will not be forgotten later under the more stressful conditions of trying to write up the project or dissertation for a deadline. Part of the more supportive side of supervising will be to help students understand a wider range of possible roles and what they actually mean in terms of the supervisor's behaviour as well as their own (Todd et al., 2006). It is unlikely that students will initiate discussion about the wide variety of roles and relationships outlined earlier (Table 6.1). And while confronting the student with all ten possibilities may not be the best way to begin a supervision experience, it may be useful to make clear in the early stages that coming to terms with a new way of working is an important part of the working relationship.

Roles and relationships are not the only important part of setting the ground rules. It is important to negotiate the actual practical side of what each can expect of the other. These are more likely to be set out in course documentation. Although an expectation that these might be read before the first meeting may be reasonable, it is useful to spend time interpreting what they mean and perhaps modifying and suggesting new elements which suit your particular relationship. Now, there are pressures to formalize the duration and frequency of supervision meetings but we need to bear in mind that this is an area in which there are important individual differences and working to a mythical average may not always be appropriate.

Table 6.2 *Supervisor and student expectations*

Supervisors expect their research students to	Students expect their supervisors to
<ul style="list-style-type: none"> • be independent, even though some aspects of the research process may require conformity • follow their advice, especially when requested by the student • produce written work that is fairly polished • have regular meetings • be honest when reporting progress • be excited about their research 	<ul style="list-style-type: none"> • supervise them • read their work well in advance • be available when needed • be friendly, open and supportive • structure sessions to support easy exchange of ideas • have good knowledge of research area • have sufficient interest in their research to put more information in the students' path • be sufficiently involved in their success to help them get a good job at the end of it all!

Sources: Adapted from Woolhouse, 2002; Phillips and Pugh, 2005

We should not assume that written ground rules will get in the way of a close personal relationship. It is easy for discussions about processes to be seen as personal criticism. Ground rules, statements of responsibilities and written criteria can more easily become a subject for discussion than can particular issues troubling the supervisor or the student. Phillips and Pugh (2005) describe what supervisors expect from their research students, as well as what their research students generally expect of them, which might provide useful guidelines for supervisors (Table 6.2).

Student expectations of their supervisor

While student expectations of their supervisor may vary in different learning contexts, research has shown that there are many similarities. Students expect their supervisor to:

- be friendly and supportive;
- read their work ahead of time and provide feedback;
- have relevant experience and knowledge of the research field;
- help them locate resources; and
- ultimately, to be involved and interested in their development (Woolhouse, 2002; Phillips and Pugh, 2005).

Interestingly, when supervisors were interviewed about what they believed were their actual responsibilities to their students, they identified similar expectations. These included:

- supporting students by helping them identify and define their research question;
- determining the feasibility of the student's proposed research (whether necessary resources are available);
- questioning – even challenging – the student on research decisions;
- requiring the student to justify the research approach and methods;
- advising the student on appropriate methodologies (assisting with methods when appropriate);
- helping the student plan work and meet targets; and
- attending to technical or mechanical parts of the research project (writing, grammar, citation, etc.) (Todd et al., 2006).

Students usually find it helpful to know that other students share their expectations and that they are not expecting too much. On the other hand, these expectations need to be interpreted in context. It may be reasonable, for instance, to feel that their supervisor should have the courtesy not to answer the telephone during a meeting. Given the pressures on supervisors it is often easy to forget to put telephones through to support staff or turn them off. If the supervisor were expecting an urgent or very important call, however, many students would agree that this is perfectly acceptable if it were mentioned beforehand. Similarly, how much help, realistically, to expect from a supervisor in finding a job at the end of the research is worth addressing. Guidance, references, contacts, some 'inside' information and so on may be reasonable but pursuing or hunting the job down for the student is not.

All students expect detailed comments on their written work but there is disagreement as to how far these comments should be directed at telling students what they should do and how far they should raise questions and suggest alternatives. Whereas the latter might be the more useful general approach, there are occasions when students might expect straight answers to straight questions. The range of possible responses to students' work (Chapter 8) is not only concerned with the quality of comments. The quantity can also be quite problematic as staff-student ratios deteriorate. Some supervisors write very little and rely upon the tutorial discussion while others write a great deal. Either way, as Cox (2007) notes, extensive feedback is a valuable feature of higher education with substantial impact on student learning (see also Chapter 8).

Supervisor expectations of their students

At the same time, supervisors would do well to reflect on their own expectations of the students they supervise, to explain those expectations at the

outset and to review those expectations throughout the supervision process. Again, expectations may be individual and specific, but research has shown many similarities. Supervisors often expect students to:

- become familiar with and adopt the practices of the research community;
- make original contributions to the field (although not necessarily at the undergraduate level);
- develop a ‘critical and reflexive intellectual stance’; and
- believe deeply in the value of the project at a personal level (Anderson et al., 2006: 156).

Most expect their students to attend meetings on time; to come prepared (with something tangible to discuss), to help establish and meet target goals and to bring passion and enthusiasm to the project (Todd et al., 2006). They also expect students to be honest when reporting their progress and simply to be excited about their research (Phillips and Pugh, 2005) (see Table 6.2).

As Brew and Peseta (2004) have suggested, such expectations may be more or less student-centred. For example, they examined how a professor’s ideas of ‘competent autonomy’ shifted to become more student-centred and relevant to the current higher education context after participating in a faculty development module on supervision. Before his engagement with the programme, his old ideas of competent autonomy included such things as being able to design experiments; critically to interpret the literature; to analyse data; to know lab and field techniques; and to know scientific writing. After the programme, he expressed new ideas of competent autonomy, which included being able to write for refereed journals; to prepare research grant applications; to cope with and respond to peer review; to speak publicly; to work in teams; to supervise; and to understand the professional standards of the field (Brew and Peseta, 2004). The overarching expectation is that the student will become a part of the community of scholars, a process which greatly transcends acquiring knowledge and new skills.

Self-directed learning

Promoting self-directed independent learning and the acquisition of meta-skills (learning to learn and the transfer of learning to new contexts) is a critical aspect of supervision. Meta-cognitive learning skills focus upon self-management and what the learner does in new contexts, which is the ultimate aim of university teaching. Good traditional teaching – and developing

learning – involves going beyond the information given. Here, direct instruction is followed by thought-oriented activities that challenge students so that they apply, generalize and refine their understanding (Biggs et al., 2007). Like the experience of problem or inquiry-based learning, students are encouraged to raise critical questions, to reformulate problems and to test new solutions. The supervising case study in Box 6.1 illustrates this process.

Box 6.1 *Supervising postgraduate work*

Kate, a new faculty member in English and fresh from her doctoral studies, has learnt she must supervise three masters' students. Although her own experiences of being supervised have varied, she recalled often feeling unsupported and distanced from supervisors, and she did not want to replicate that experience with her own students. She wanted to offer her students guidance and support, but also let them wrestle with the research process as well.

She decided to meet with each student to get to know them as individuals, but also to get a sense of their abilities and interests. With each student, she helped them set up an individual research plan, where she outlined her expectations about the final product, and let them explain the kind of support and supervision they thought would personally work for them. Two of the students, Margarite and Henry, preferred to meet monthly and send her drafts as they completed sections, while Ronan preferred to meet weekly and get more feedback as he developed his ideas.

She occasionally had all three meet together, as a research group, to share their progress and setbacks, to support their interpersonal development and growth as researchers. She helped all three shape their specific projects, working with them through the research process. She reigned in Henry, for example, when the scope of his question grew unwieldy. When they ran into problems, she offered guidance when they seemed to stray off course, but asked them to think through possible resolutions to the problems they encountered, to encourage independence and self-directed learning.

Biggs, here, takes a more purely intellectual slant on some of Schon's requirements for working effectively within his model 2 described above. Schon values the willingness to explore assumptions and inhibitions that we may not know we have. It comes closer to encouraging a more therapeutic approach. And in many respects good supervision requires us to explore what we have called learning gap 4 (see Chapter 2), where the student may know what to do and want to do it and yet not actually do it. The student may be more worried about it not being good enough and feel that the risks are not worth taking. On the other hand, the consequences of not taking the risk might be even more damaging in the end to a sense of personal and professional identity. These are important issues in the more creative activities associated with theses, dissertations and even undergraduate projects. The project, as an undergraduate student said, 'is the only real opportunity for your own ideas'.

Some students, but certainly not all, may begin their research in a state of considerable dependency, and must be encouraged to be independent and accept responsibility for their own learning. Whereas for some students the release from severe time constraints can mean that they feel free to take

risks and explore ideas now that they have the time to research and back up their ideas, for others, this open-endedness can be threatening. Fear can be quite a common response to freedom but, although more support may be necessary at the beginning, it is important not to set up patterns and expectations that mean that students remain in a state of dependency.

On the other hand, in trying to avoid this, we may find ourselves behaving as if our main purpose is to point out all the faults and difficulties to the student and fail to see that this can be very damaging and may make them retreat into even greater dependency. Phillips and Pugh (2005) have reported how students interviewed in their study sometimes burst into tears when discussing some of the difficulties they had in relating to their supervisors, even many years after they had actually gained their PhDs. At the time they had not revealed their feelings and felt in retrospect that perhaps their supervisors did not realize just how badly hurt they had been. A sensitive interview provided the opportunity to express the feelings that they had hidden at the time.

Unfortunately, supervisors often get very little help in coping with the more emotional aspects of giving criticism, but they may need much more than helpful advice and role-plays can be a very useful addition to supervisor workshops. In encouraging independence, the language of alternatives and different perspectives is likely to be more effective than the language of right and wrong or good and bad. Edward de Bono's (1994) approach in terms of parallel thinking provides a useful non-adversarial approach to encouraging more constructive and creative thinking. Different perspectives and arguments need to be kept in mind to see if they might contribute to a richer and more integrated approach rather than eliminating each one because of its particular failings.

Self-criticism can be extremely inhibiting where it undermines self-confidence. Opportunities for students to present their work in rough and use rough drafts can help them to take more risks and be more independent. It can help get past the feeling, as one student put it, that they 'don't like to express half-formed ideas' or write unless they are sure of themselves.

Another way to lessen the threat of self-criticism and encourage more independent thinking is to encourage students to keep an intellectual diary. This is not necessarily seen by the supervisor but is a place where a student can express guesses, opinions and hypotheses without necessarily immediately having to justify them. This has some parallels with the very useful device of brainstorming. Students may need to be encouraged to try out new ways of writing and being productive as well as new perspectives and alternative solutions.

Encouraging dialogue

Supervision is predominantly about dialogue. There is a need for constant adjustment to what each participant is saying, and the balance between giving and taking, listening and talking is crucial if the session is not to become a lecture in disguise. Although supervisors can and do learn a great deal from supervisions, the dialogue is not simply a friendly conversation. Nor is it an interrogation or even a Socratic dialogue.

Initially at least there may be a considerable imbalance of power and intellectual sophistication, but an important function of the supervision is to reduce this imbalance and to enable the student to become an independent researcher. There may be times when interrogation and serious challenging are appropriate, but if the general pattern is one of unilateral judgement and assessment rather than constructive dialogue it may be difficult to develop the professional skills of self-criticism and critical reflection.

The issue may be less one of supervisors not thinking about supervision in these terms, than that it is easy to let development not happen. In ordinary conversations we may avoid dominating the discussion but, in general, if we have interesting things to say, we say them. We do not see it as one of our aims to encourage the other to say those ideas we feel are our own. In fact, it is easy to slip into either a didactic mode of telling or a conversational mode of enjoying giving our opinions.

In supervision, maintaining a subtle balance of talking and listening is not simply a question of letting the other person have their say and listening with interest. There is a more active, searching process involved whereby you become clearer about both the strengths of what the other is saying and about the hidden assumptions and misconceptions. It is essentially an exploratory process, which can be enjoyable but does not benefit from the self-expression that comes from good friendships.

Supervision is not just about one-to-one interaction; it may involve a wider involvement in the student's personal and social life. Loneliness is a dominant theme in many of the books on doing a research degree, although there is now much more interest within universities in creating learning communities not only for undergraduates but also for graduate students (Lave and Wenger, 2000b; Smith and MacGregor, 2000).

Science research students have often benefited from being able to interact with their peers and to learn from them in the laboratories. Now research students generally are able not only to express their own discoveries and new ideas but also to talk about the problems of their research and its methodology.

Sharing perspectives and approaches is an important part of most research students' lives. Perhaps the most valuable part of this is the semi-formal environment of student seminars that are often attended by supervisors. The more formal courses can also be a new area for students to interact and learn the skills of becoming professional researchers. If these are too remote from the student's own perspectives and approaches then they can appear to be increasingly like being subject to undergraduate control. There is now a wider realization that if these courses are to become part of the transition into professional life, they need to become less authoritarian and remote and more responsive to the needs and ideas of the students.

THE PERSONAL DIMENSION

The influence of personal relationships in supervising is extremely important but it is still rather controversial just how much the relationship should be friendship. Most would now agree that it is important for each to get to know the other and very often this is difficult if the only relationship is in a study or in a seminar room. Although there is very little discussion of this in the literature, many supervisors feel it is important to be able to relate within a more informal social dimension. The ways in which groups get to know each other better (Chapter 5) can also be relevant to groups of research students.

Supporting the research journey

It is within the more personal one-to-one relationships where boundaries become an important issue. Research students often go through difficult periods of confusion and loss of confidence, not only in the quality of what they are doing, but whether it is worth doing at all. Unlike their undergraduate lives, when they have many areas of interest and many different and quite close relationships, research students find they are very influenced by their view of how their research is going and how the most significant other person in that research, their supervisor, is feeling about it.

We saw earlier that undergraduate projects can become a very important focus of students' lives; this is very much magnified for research students. For supervisors, maintaining the balance between support and independence in the personal sphere can be rather more difficult than in the intellectual. With research students, the supervisor is much more bound up with the success or failure of the research and often there is a very strong

shared interest in the topic. Trying to make the student more independent might be seen as being uncaring and not supportive.

In many fields, a PhD may seem more of a 'personal journey' than a process of research training (Salmon, 1992). Becoming lost on this 'personal journey' can be quite frightening and disturbing for students if they feel more dependent on their supervisor and want to be given firm direction. Helping students find direction is certainly an important role for supervisors but, if they become too dominant in this respect, then the ownership of the project begins to pass away from the student and towards the supervisor. This might provide some temporary relief for the student but in the long run the question of whose research is it can become in itself quite disturbing. Science PhD students often only meet this problem when they are doing their post-doctoral work; their PhDs are frequently much closer to research training where close direction from the supervisor is expected. With arts and social science students these ambiguities and ambivalence can create tensions which may need an outside professional to help resolve.

Even experienced supervisors often encounter serious problems from having been drawn into personal problems that directly affect the student's work. This can make the more academic aspect of supervision very difficult, and it is important that there should be other academics in the department who have some responsibility for students when supervisors find it difficult to cope effectively. In some departments, it may be difficult for a research supervisor to be able to share responsibility for all the research students. Small supervisory committees are, on paper, supposed to be able to cope with this. In effect it is very difficult to take responsibility for another supervisor's students as well as your own unless this is taken account of in resource terms as an important extra responsibility. Supervisors themselves can benefit from being able to share anxieties and pleasures with other supervisors. Some highly stressed professions take care to set up supportive relationships among the faculty.

Research styles and professional identity

Encouraging independence (in the personal sense) will, to a large degree, depend on the supervisor's understanding of the range of styles and ways in which research may be approached. Supervisors may regard their own approach as the only one and convey it – tacitly and/or explicitly – through the supervisory relationship. Gough and Woodworth (1960) have, for example, identified eight stylistic variations among professional research scientists that are still instructive for their diversity:

- the zealot;
- the initiator;
- the diagnostician;
- the scholar;
- the artificer;
- the aesthetician;
- the methodologist; and
- the independent.

This is not an exhaustive list and other categories of variations will exist among the social scientists and the arts, although it is amazing how many transcend discipline and professions.

Enabling research students to develop their own appropriate style(s) of research is crucial to their independent development. There are also concerns as to whether a more uniform and formalized system of research training will encourage and further expand such diversity. Such training programmes often justify research methods courses in terms of introducing students to a variety of research approaches. This might help students to discover what sort of researcher they want to be.

Supervisors have a key role in guiding and developing individual understanding and confidence in this respect. Reflecting, for example, on how the master's dissertation can get beyond the intellectual, a faculty member from the social sciences commented: 'I think beyond that, something which is less tangible but gives evidence that the student has been excited by it and values it and really wants to carry it further forward, so it's meant something personal to the student beyond the requirements' (Anderson et al., 2006: 154).

Achieving a sense of independent personal and professional identity is an important aspect of higher education, especially for advanced postgraduate/graduate students. Many research students do not particularly want to be researchers but see a doctorate as a necessary qualification for becoming a teacher in higher education. With the rapid expansion of higher education throughout the developed world, this may be a bigger problem in the future and it could be that some of the problems which our research students face relate to this issue of professional socialization. Certainly no teachers in higher education should be ignorant of research methodology, and indeed research practice, but it may be that many PhD students should be doing professional or practice-based doctorates. Their research is personally important but is not their prime orientation.

The significance for supervising is that we – individually and collectively – need to understand more about why students are doing their research in

higher education and how far it enables them to develop a sense of professional identity. Even for students who do want to become research academics, the development of a particular research style can be a crucial aspect of their development. At the same time, some teachers are critical that the research project will lean too far towards application, rather than seeing it as an opportunity for students to pose, rather than solve problems, and transform their conceptions of professional development (Anderson et al., 2006). It is not clear, however, that supervisors address these issues very coherently.

THE SOCIAL DIMENSION

The challenge of social isolation

Although the situation has improved in recent years, social isolation can still be a problem for research students. This is still partly a question of poor facilities for research students (Becher et al., 1994). Science students may be able to identify quite closely with their space in a laboratory, but arts and social science students may have little sense of belonging, without a sense of geographical personal identity other than a shifting library seat and the opportunity to use a communal computer.

Supporting students in their quest for space within the academic research supervision is important. The issue is now being addressed more seriously and may become less of a problem as graduate students are more integrated into the teaching staff. Cryer (1996) highlights the social dimension of graduate education and promotes the development of more personal student and staff networks. Email and web-based social network systems are unlikely to provide all the social contact that students may need, although they can certainly help reduce isolation and can provide a valuable channel of communication based on the intellectual side of being a research student, as well as fulfil more personal and social needs (Oblinger, 2003).

For a long time, it has been common for scientists to work in teams, but now the value of developing interpersonal and teamwork skills has been recognized much more widely both for industry and for social and personal benefits. Certainly, students coming to college today expect to work in teams, both at university and in their careers (Howe and Strauss, 2003).

Many universities now recognize the need to help research students develop their teamwork skills and their communication skills more widely. Conference, poster and seminar presentations are more valued for both content and process. Journal clubs and thesis groups, a standard in the sciences

and social sciences, are becoming more common in other fields. These provide opportunities for students to meet with their peers to discuss recent scholarship and to share their own research. This new emphasis upon the social dimension of graduate studies can make a valuable contribution to developing confidence and independence.

THE PRACTICAL DIMENSION

Encouraging problem-solving

Providing support to students developing their practical research skills may be confined to supporting their practical and technical need for access to equipment/apparatus, appropriate physical spaces/laboratory/clinical/field, relevant services (library, media, computing, etc.). More often than not, it will also include support in the practical use and application of these. Considerable support for the above can be given to students through the provision of clear:

- guidelines, structures and timetables;
- support documents/material/equipment; and
- criteria for their use, together with close supervisor/tutor and technician supervision and feedback.

Fostering independence and accountability

Supervisors will need to be careful in the extent to which they provide such explicit support. There is the danger of undermining the student's developing research independence. As with the undergraduate practical work, there needs to be plenty of opportunity for choice in deciding, defining and carrying out tasks and problems. This may include:

- involvement in planning and decision-making;
- the opportunity for students to find and provide support materials;
- involvement in setting criteria for progress and for self-assessment;
- time and opportunity for development and risk-taking; and
- accountability for the research and completion of the project.

A difficulty with PhDs in both the sciences and social sciences is that often the supervisor is responsible to specific fund holders for ensuring that a particular research project is designed and completed successfully. Issues of

independence can be difficult to balance with the supervisor's own research responsibilities. Rudd (1985) found that many research students – particularly in the sciences – feel that the research is not their own, but rather almost entirely their supervisor's. In those circumstances, it is difficult to develop student independence. Careful planning, however, can help supervisors arrange for both their own needs as project directors and those of their students to be accommodated. Research students are not simply research assistants. They are often engaged in the two equally, and both roles need to be recognized in terms of their developing independence.

Part of being independent is being accountable for the completion of the project as well, whether speaking of the undergraduate or postgraduate research experience. Reflecting on his early experiences supervising undergraduates, a faculty member from a science department commented:

I expect them to be much more independent than they are. One of my students needed to do an extremely complex statistical analysis, which I had only theoretical interest in. I encouraged her to go and see an expert in that field. She did not. So I arranged the meeting for her. The format of the meeting was to be the student giving a talk on her work, and then getting some advice on the analysis. She failed to prepare for the meeting. It was awful (Brew and Peseta, 2004: 14).

In this case, the teacher had taken steps to solve one problem (the student's lack of experience with the required specifics), but had not addressed the underlying problem: the student had chosen not to be, or had not known how to be, accountable for her own learning in the project.

Developing the interpersonal

Interpersonal practical skills can be developed in the relationship between student and supervisor but it will be restricted. They will be more fully enhanced by being part of either a research team or a group of researchers focusing on mutually beneficial processes of general and specific practices. This will include the negotiations of tasks and roles, setting criteria for progress and involvement in peer and group assessment and evaluation of practice. Such activities will be enhanced if group social relations are considered as an integral part of good team working. Many universities also foster professional links, visits and even exchanges which enable students to gain a wider view of research practices and to improve their collaboration and communications skills within them.

ASSESSING RESEARCH

Formative assessment

For the supervisor, research assessment is essentially an issue of formative assessment, concerned primarily with feedback and helping students to learn and develop their research rather than with summative assessment that is concerned with the final examination (see Chapter 8 for a full discussion of assessment). Supervision may be defined as a process of formative assessment (albeit with a focus on the final examination). In many ways this constant reflection upon the quality of the work the student is producing is a more important feature of the total educational process than it is with undergraduate education. It maintains a much more important role in learning than in ordinary courses since, unlike many aspects of undergraduate assessment, it is constantly integrated into the learning process.

The analysis of comments on assignments in terms of both possible purposes and styles of comment (see Chapter 8) is one way of gaining insight into research student assessment. The purpose of enabling students to become more aware of their implicit conceptions of the task is highly relevant (Brew and Peseta, 2004). How far, for example, do they understand it as a transformative process, emphasizing in their writing the 'argument' and 'cogency' presented by the material, rather than simply as a telling process with an emphasis on merely the relevance of the material and its textual arrangement?

Sloboda and Newstead (1995) provide a useful analysis of the process of assessing research students, which has been of great use to both research students and supervisors. The main interest here is in the criteria to be used for assessing the written submission – central criteria also in giving feedback to students for developing their learning. They divide these into four general attributes and five sectional attributes (Table 6.3). Their appendix contains notes of guidance for examiners concerning the criteria to be applied when assessing each of these nine attributes but with the caveat that they should be considered as indicative rather than definitive.

Creativity and originality

These criteria say very little about creativity or originality, an important element within all the universities' criteria for examining PhDs. Phillips and Pugh (2005) and Cryer (1996) give interesting reviews of the very diverse conceptions of originality currently in use. Originality can be a rather worrying criterion for research students and their supervisor could help them

Table 6.3 *Attributes of research project assessment*

General attributes	Sectional attributes
Presentation and clarity	Review of relevant literature
Integration and coherence	Statement of the research problem
Contribution to knowledge	Methods of inquiry adopted
Originality and creativity	Analysis of data
	Discussion of outcomes

to review the different ways in which a thesis might be considered to be original. Such interpretations as ‘saying something nobody has said before’ or ‘carrying out empirical work that has not been done before’ leave a lot unsaid about just how intellectually challenging each needs to be in order for them to count as an original contribution. Designing a new questionnaire, sending it out and analysing the results can be original, but a vital question to address is whether or not it is worth doing and whether it has anything important to say (Anderson et al., 2006). Similarly, making a new synthesis or a new interpretation or trying out in one country what has only been done in different countries, or taking a particular technique and applying it in a new area, are all potentially interesting for their originality but by themselves may guarantee very little.

Being very prescriptive about originality may be somewhat contradictory and create new problems. The context and the levels of sophistication are critically important in judging whether a cross-disciplinary study or new methodologies or reinterpretations of someone else’s ideas or carrying out original work designed by a supervisor present difficult questions about how far the student really is making an original contribution.

Like many other issues of supervision, the best policy is to look at different examples and discuss these with the students. Ongoing discussions with colleagues within individual disciplines and departments are also essential to ensure a critical consensus. This might usefully be covered in research seminars at early stages in the research process. Abstract descriptions of what is required can often be difficult for students who may have different assumptions and expectations from the supervisor and may interpret criteria in a very different way.

Summative assessment

In general, there is a fair amount of agreement among examiners in the assessment of research, but in some cases the differences are striking. In her qualitative study of 51 examiners’ evaluations of doctoral theses, Johnston (1997),

for example, reports this agreement, but also highlights the disagreements that can occur. One examiner enjoyed reading it and felt in no doubt that it should be passed. Another said: 'this is a genuine and admirable doctoral work, well worthy of the degree at any Australian university.' The third examiner, however, recommended it fail: 'It falls short of the key criteria for a PhD... I do not think that the idea or the way in which it is deployed in this thesis displays sufficient originality or makes a significant enough contribution to learning to merit the award of a PhD.' Johnston suggests that such cases may arise where there is an ideological incompatibility with the content of the thesis. She feels that there is a need for more openness in the examination process and for more formal training of examiners.

Supervisors can help to open the process through more thorough-going departmental and institutional discussion and sharing of good practice. The organization of mock vivas or defences and providing the opportunity to observe other students going through mock vivas can also be extremely useful and helpful to both supervisors and students. Like many aspects of higher education, being told about processes or even having them demonstrated might be far less important than enabling students and supervisors to become actively engaged with the process.

Past PhD theses can be an important source of information for students. Reading these could be combined with an assessment exercise (however simple) with the supervisor or in company with other students who have an interest in the area. An interesting feature of Sloboda and Newstead's (1995) report is the suggestion that the students should be encouraged to include a section in the thesis on their learning. This would discuss what they have gained from the research process, personally as well as intellectually, and how they might change and develop their approach if they were to start anew.

In many ways, assessing a dissertation or thesis is more demanding than assessing coursework assignments. Knowledge of the field is reasonably straightforward to assess, but assessing the higher levels of academic work – including originality, analysis, synthesis and evaluation – often within ideologically incompatible contexts – can be very difficult to assess reliably.

CONCLUSIONS

Supervising can be a model for teaching in general. It combines not only sharing and developing a high level of intellectual interest, but does so within a very personal and emotional dimension where students' whole lives become intimately bound up with their intellectual expression and development.

Many years ago, a student was being interviewed in her final year about her response to the assessment system (Cox, 1975). Although initially focused on assessment, the interview soon became an exploration of the changes which students go through in their transition from school to university. The assessment system was seen to be an important element in this transition from dependency to independence. Towards the end of this very long interview, the student said that, despite her being in the final year, this was the first time that she had thought seriously about what being at university really meant to her. Her academic work had not been well integrated into her personal life and development. Another student, slightly earlier in her academic life, said 'I'm finding my feet, I don't care so much about the work'. Perhaps today's students think more about what being at university means to them, but often there is no particular encouragement to do this. Even if not everyone wants to take their place in the research community, the experience of engaging in a significant research project can be an important formative period in their lives.

Thus, supervision can be an essential part of a student's development and 'changing as a person' that we discussed in Chapter 2. Transferring our own learning from supervision into more traditional teaching can be a very valuable development if we encourage students in general to cope with the unexpected and the supercomplexity of modern life (Barnett, 2000). The process of supervision, however, even at undergraduate level, should not be viewed as one-directional. It can be a great opportunity for reciprocal learning: the experience can remind supervisors that there are still new things to learn; that they can gain new insights and perspectives; that they can gain a fresh understanding of old material; and that there are new questions to consider (Carrington, 2004). Certainly, it can provide a much stronger relationship between personal identity and academic work (Brew and Peseta, 2004). Francis (1997: 19) puts the personal side of supervision strongly:

Helping to cope with the emotional turmoil, sharing the pleasures and the pains, is as important for researchers as is the tutorial supervision of their work. Friendship helps a great deal – so does the opportunity to bounce ideas and feelings off others also engaged in research. Work with a supervisor is the richer if there is a strong shared interest in the work and in each other's ideas about it; and most is gained from the research process by finding a balance between individual drive and autonomy and the engagement of support of others. One of the most satisfying aspects of the process for both supervisor and student is the emergence or strengthening of a competent researcher, personally wiser and more confident in their work, and fit to take their place in the research community.

Final questions: Supervision allows us to learn a great deal more about the importance of the learning process and personal relationships in teaching. The end product is obviously of great importance in research, but we might want to concern ourselves less with end products and reflect more with on learning processes. As such, supervisors might ask themselves: how can I foster a learning environment that will allow my students to integrate the creation of knowledge with critical reflections on their process? How can my students produce research which allows them to develop and change as people? How can I assist my student to develop the ability to transfer the skills and strategies they learn as novice researchers to other contexts? Fostering this independence, while offering support and guidance, is crucial for their students' development as researchers and as lifelong learners.

NOTE

¹ The UK and the USA use different terms for these substantive projects. In the UK, at the postgraduate level, master students complete dissertations and doctoral candidates theses, while at the graduate level in the USA it is the other way around: masters' students usually complete master's theses and doctoral students complete dissertations to earn their PhDs. At the undergraduate level, a range of terms are used, including projects and dissertations in the UK and independent studies, senior projects, senior theses and honours theses in the USA.