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Diffracting the practices of research supervision
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Abstract
There are ever increasing demands and expectations in the research world, related to the quality of research supervision. It can be difficult for an individual research supervisor to recognize their own quality of research supervision. On top of this are the added challenges of trying to improve that quality of research supervision.

Reflective practice is consistently identified as a way for developing professional practice in research supervision. This chapter offers a number of frameworks to facilitate reflective practice about research supervision. It does not propose to solve the problem of quality research supervision but to provide ways in which a research supervisor can reflect on this aspect of their professional academic practice and begin to plan ways in which their practice can improve.

Context
While there have been increases in the number of students enrolling for research degrees there has been a growth in interest in research supervision. It is one of the many practices in the repertoire of practice for a university academic. Where governments have encouraged higher degree research with incentives based on completions, these agendas have helped to focus on the quality or the lack thereof of research supervision, adding to the ongoing conversation in higher education. In recent years, these investigations began to identify specific practices that can be seen as either effective or good research supervision, and which are likely to lead to research degree completion.

James and Baldwin (1999) identified eleven practices associated with effective postgraduate supervision

- Ensuring the partnership is right for the project.
- Getting to know the students and carefully assess their needs.
- Establishing reasonable agreed expectations.
- Working with students to establish a strong conceptual structure and plan.
- Encouraging students to write early and often.
- Initiating regular contact and provide high quality feedback.
- Getting students involved in the life of the department.
- Inspiring and motivating students.
- Helping if academic and personal crises pop up.
- Taking an active interest in students future careers.
- Carefully monitoring the final production and presentation of the research.

James, R and Baldwin, G.(1999)

Brew and Peseta (2004), in an appendix to their paper about professional development strategies for research supervisors, identified a range of practices under their criteria for good research supervision

- Interest in and enthusiasm for postgraduate research students.
- Appreciation of good practice and an understanding of what constitutes a productive research environment.
- Establishing clear goals for the student in the light of university requirements.
Regular and productive meetings with the student that provide support and guidance in their research.
Managing the process to produce timely and successful completions.
Developing a partnership with the student that introduces them into the research community.
Open communication that contains supportive and challenging feedback on their progress.
Utilising a repertoire of strategies to achieve supervision.
Evidence of systematic evaluation of one’s supervisory practice
Using literature to improve supervision pedagogy.

Angela Brew and Tai Peseta (2004)

These lists of research supervision practice overlap. They also provide evidence of the complexity of the practice and substantiate why there can be so many problems associated with learning or improving research supervision.

**Developing practice through reflection**

Within this general agenda of seeking to name specific research supervision practices, authors have also examined the question about how best to develop these practices. Consistently these discussions indicate the importance of reflective practice both for recognising good research supervision and for improving it.

Reflective practice has a long provenance with learning and professional development. It is reputed to have been advocated by Plato in the Ancient Greek schools (Schrag, 1992). In contemporary educational philosophy, it has been encouraged by John Dewey (1933), who like Plato encouraged people to reflect on their belief systems. Similarly, Donald Schon (1985) advocated reflective practice as a significant professional practice for all professionals.

There are similar arguments for reflective practice within the discourse of research supervision. Johnston (1995) advocated reflective practice in the context of action research for research supervisors wanting to improve their research supervision practices. She contrasted this with the then traditional and well established methods of professional development that were often one-of workshops in which supervisors listened to each other talk about their theories and literature about research supervision. This, she criticized, was removed from the site of the practice which gave little chance for implementing new skills or ideas. Brew and Peseta (2004), acknowledging the importance of reflecting on research supervision practice, encouraged supervisors to write about their own experiences of being supervised as a catalyst for reflecting on and identifying what constitutes good research supervision. Manatunga (2005) emphasized that research supervision is often a private practice that requires reflective practice.

All research supervisors can benefit from reflective practice. For novice research supervisors, where they are often drawing on what they observed as research supervision during their own candidature, it is all the more important that an agenda of reflective practice be brought to bear so that observed experiences are evaluated in the light of discussions about good research supervision. Despite a clearly theoretical need for reflective practice, the reality of academic practice and lack of adequate time to reflect, along with the complexity of research supervision practice, hinder a practical application of reflective practice.

This chapter proposes four models to assist with reflection on research supervision.
Model/Exercise 1: prior knowledge of research supervision

Kandelbinder and Peseta (2001), Pearson and Brew (2002) and Brew and Peseta (2004) have observed that many neophyte research supervisors draw on their own experiences as research students to set their agendas for the emergence of research supervision. In this regard, a novice research supervisor begins their practice with a repertoire of research supervision practices, modeled by their own supervisor, someone whom they see as an expert in research supervision. This repertoire is often accepted without question. Reflective practice opens these observations to evaluation and at times revision. One way to reflect is by exploring the following questions.

Think about your own research degree experience:
When I was doing my doctoral studies the best thing about it was...............
The most troubling thing about it was.............................................................
Together, these two things give me a research supervision agenda of............

This exercise helps to name otherwise unnamed capabilities by recognising that both good and bad experiences inhabit one’s research degree candidature. It sets in train a process to review strategies in the light of current literature about what constitutes ‘good’ research supervision; and to help to marshal practitioners away from the ‘that was a bad dream...let’s forget about it’ response, into an identified agenda that can in turn be articulated into a research supervision professional development plan.

Model/Exercise 2: Observing the research supervisor mentor

For many novice research supervisors, their first experiences of supervising a student are in the context of a co-supervision model (Phillips and Pugh, 1987, p. 109; Bourner and Hughes, 1991, p. 23). This arrangement for research supervision has advantages for supervisor continuity for the research student and lends itself to research supervision mentoring.

Co-supervision also has potential for abuse. There can be unresolved power issues between the experienced supervisor and the novice supervisor. There can be modelling of poor research supervision practice from a presumably more experienced supervisor and a lack of experience on behalf of the novice supervisor such that poor supervision is mistaken for the normal practice (Spooner-Lane, S., Henderson, D., Price, R. A. and Hill, G., 2007).

One way to reflect on these experiences of research supervision is by exploring the following questions.

Think about your first research supervision experiences:
What was something that you observed the supervisor do that you felt helped you in advancing your knowledge of research supervision?..........
What would you have liked to have been better explained by your mentor?.......What was the most troubling thing about it what you observed? .......
Model 3: Examining practice – a competency model

In addition to the two models/exercises already discussed, the practices of research supervision can be reflected upon in a more holistic way.

The competency model (Diagram 1) presents any practice as the amalgamation of Skills, Knowledge and Attitude. Skills and Knowledge are acquired over time through both formal education - the purposeful pursuit of knowledge about that practice - and informal learning or experiences- by doing the job. A person's attitude about their practice - how they think about it - is underpinned by beliefs. Often a practitioner is unaware of the beliefs which feed their attitude about their particular practice. These beliefs can be:

- Their beliefs about themselves as a practitioner;
- Their beliefs about the stakeholders in the practice, and
- Their beliefs about the particular practice;

Diagram 1: Practice as competencies

In the case of research supervision, the stakeholder is often the research student. Also in the case of research supervision, the research supervisor's own belief system about research may have an impact on their beliefs about supervision.

For example, a research supervisor with an epistemological belief that knowledge arises from practice, may let this carry into their research supervision and support a further belief that the student already knows something about research practice. This may generate a research supervision strategy of drawing out what the student knows before addressing what they do not know.

Recognising one’s belief systems underpinning practice can also bring to light incongruence between stated beliefs and actual practice.

For example, a research supervisor, in a well-intentioned way, might tell their student what needs to be done to complete the research. Without reflection, the supervisor may fail to recognize how this practice could contribute to the student’s subservience rather than begin to empower them.
Model 4: Constructs of research supervision

Research supervision is a complicated repertoire of practices. Framing the extensive literature about research and research supervision provides a way of breaking this complexity down into smaller elements, making understanding of the practice more accessible.

In my own practice as a research supervisor, I have come to frame the literature in four constructs (Diagram 2):

![Diagram 2: a map of knowledge about research supervision (Hill, 2007a)]

1. **Research supervision as pedagogy**
   My own access to the literature on research supervision was in the context of a doctoral investigation into research practices (Hill, 2002). At that time, a large portion of the literature advocated the view that research supervision was teaching. As early as Connell’s (1985) personal account of research supervision, research supervision was seen from the context of an academic’s other teaching practices. This view has continued through to current time (Pearson and Brew, 2002) although contemporary literature tends to use the term *pedagogy*.

   The term pedagogy is a well debated term. For some (Bruce and Stoodley, 2009) the term when used in the context of research supervision, is defined broadly to include discussion about philosophy, relationships and teaching strategies. In this text, I have restricted my definition of *pedagogy* to just teaching strategies.
2. Research supervision as relationship

For as long as there has been discussion about research supervision as teaching there has been discussion about the supervisory relationship. Moses (1985) and Shannon (1995) both commented on the supervisory relationship and the shift from the medieval expert/novice relationship to one more attuned to a more experienced (academic) professional mentoring one less experienced. James and Baldwin (1999) give substance to some of the ways in which the student/supervisor relationship can be developed. Green (2005) progressed these discussions by articulating the idea, often referred to in practitioner talk about research supervision, but not mentioned as frequently in the literature, that there is an inequality in research supervision by the fact that the research supervisor is often more knowledgeable about the process of university investigations than the student, and sometimes is more knowledgeable about the topic or selected methodology.

As with any relationship, there is a need to consider what happens when there are conflicts, and with research supervision, this has prompted a migration of interpersonal communication strategies into the research supervision literature, as strategies for resolving conflict within research supervision.

3. Research supervision as management

Not all research supervisors accept the notion that research supervision is pedagogy, and an alternate viewpoint is that research supervision is management and administration (Vilkinas, 2002). Such a view is not that surprising given the use of the term supervision within human resource management practice. The agenda that Research Supervision is Management embraces the notion that research is an extended project that requires management, both of its resources and deadlines. As a result, many research supervisors adopt a range of project management strategies within their research supervision practice.

4. Research supervision as facilitating contributions to knowledge

A final construct for understanding research supervision is to view it within a context that research makes a contribution to knowledge. This view of supervision draws on the provenance of both research and teaching that existed with the pedagogies in Ancient Greece. Acknowledging this provenance illuminates the significance of ontology (truth) and epistemology (knowledge) within research practice. Sometimes, these philosophical roots are overlooked, particularly when a research methodology has been chosen on the basis of previous experience with the topic, rather than being initiated through epistemological and ontological considerations.

This idea of research supervision advancing knowledge is also evident in contemporary discourses about how research is evaluated and how consistently published research is used to develop constructs of quality research.
Using these constructs to provide professional development support

Although only a model, these four constructs of research supervision generate a map of the field of knowledge about research supervision and of resources within the field. This map provides a scaffolding to refer research supervisors to resources to assist them in their research supervision. When supervisors respond to the Model 1 questions about their research supervision exposure during candidature, they reveal the sorts of constructs of research supervision that they are embracing and from this point, they can be directed to specific resources they can apply in their practice.

The resources for research supervision as relationship

When it is evident that a supervisor has a *relationship focus* in their supervision, they can be directed to resources such as, Moses (1985) Role Perception rating Scale, Supervision Contracts (Ryan, 1994; Sankaran, 2009), the conflict resolution network web site (http://www.crnhq.org) and the learning styles website (http://www.businessballs.com/kolblearningstyles.htm).

Moses (1985) Role Perception rating Scale is a useful resource in the initial stages of a research supervision relationship to ascertain the expectations the student has about research supervision. It helps to bring to the surface differences in expectations that, if unchecked, could lead to more serious conflict about the quality of research supervision.

Supervision Contracts (Ryan, 1994; Sankaran, 2009) are useful to initiate conversations about expectations a student has regarding their research supervision. Although once thought to be a binding contract (Ryan, 1994), these are now more likely to be a tool to facilitate discussions about what is expected and what can be expected in a research supervision relationship (Sankaran, 2009).


The learning styles website can help research students begin to consider how best they learn and, with this consideration what sort of research supervision they might best respond to.

The resources for research supervision as management

When it is evident that a supervisor has a *management focus* in their supervision, they can be directed to resources such as Perry’s (1994) five chapter model for doctoral dissertations, which offers a framework for planning the research process. In my own work, focused on helping students to develop their academic writing skills (Hill, 2008), I have developed a project plan for the early stages of candidature.

The resources for research supervision as contributions of knowledge

When it is evident that a supervisor has a *focus on contributions to knowledge* in their supervision, they can be directed to resources such as the The fIRST
(www.first.edu.au) site which contains resources for developing a research proposal\(^1\) or Bruce’s (1996) resources for developing the Literature Review. In addition to these, Brown (1994) has developed a set of questions that help a research student marshal their knowledge around their topic and develop a research proposal. These questions:

1. What did you do?
2. Why did you do it?
3. What happened?
4. What do the results mean in theory?
5. What do the results mean in practice?
6. What is the key benefit for the readers?
7. What remains unsolved?

provide scaffolding for the complex task of writing a research proposal. When these questions are used to scaffold academic writing, Brown (1994) suggests that the first five questions add up to a working abstract. The sixth question is one which evolves with the research document and helps the writer to keep in mind the potential readership. These six questions need to have word limits to help the research student be concise.

The seventh question deals with what is unknown and is the site of the greatest learning in the research project. Brown (1994) suggests that there is no limit for the final question.

**The resources for research supervision as pedagogy**

When it is evident that a supervisor has a *pedagogy focus* in their supervision, they can be directed to a number of general and specific pedagogical practices.

In general practices, such as Vergotsky’s (1962) notion of ‘scaffolding’ in which a complex task is broken into simpler less complex tasks, the general practice can be applied in the specific context of research supervision, for example making the complex task of writing a dissertation into a number of less complex tasks, such as writing individual chapters.

Some resources have been specifically written with the context of research practice and research supervision in mind, such as Anderson, Day and McGlaughlin (2006) description of the dissertation as a defensible product, and their advice on how to strengthen the defensiveness of the dissertation; and Winter’s (1996) historical view of the dissertation which discusses how changes in the genre of the dissertation can be linked to certain social revolutions. These resources also include Diezman’s (2005) notion of cognitive apprenticeship as an approach for developing academic writing abilities, and Caffarella and Barnett’s (2000) suggestion of developing skills in critiquing for research student by encouraging them to give feedback to each other on their academic writing and thus recognize these same issues in their own writing.

In my own reading of the agenda of research supervision as pedagogy I have noted a dearth of specific pedagogies to apply to the research supervision context. I have drawn on a pedagogy framework, common in the non higher education settings,
called Productive Pedagogies (Education Queensland, 2001)\(^2\) and applied these well established pedagogies to the higher education settings of research supervision.

The first of these is the notion of **background knowledge**, which is defined as teachers providing explicit links between the work being currently studied and the student’s prior experience. The prior knowledge referred to may include community knowledge, local knowledge, personal experience, media and popular culture sources.

When a research supervisor invokes this pedagogy they establish what the student knows at the outset of their candidature and uses this as the foundation on which to build more knowledge. I achieve this asking three questions of a research student in their initial conversation with me:

- What do you know about your practice?
- What do you know about investigative practice?
- What do you know about university based investigation and academic writing?

To help the student begin to develop their epistemology and understand the epistemology of the topic/issue/question they are investigating. Drawing out this prior knowledge affirms the knowledge that has already started to formulate their investigation (Hill, 2008).

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\(^2\) In my own research I have referred to several established pedagogies from the Productive Pedagogy model which was developed in the context of the Queensland School Reform Longitudinal Survey (QSRLS) (Education Queensland, 2001), and sought to apply these to the practices of research supervision. This framework is organized around four groups of pedagogies. I have boldened the specific pedagogies that I have explored.

- **Recognition of Difference** – recognizing and including multiple ways of knowing.
  - Cultural Knowledge
  - Inclusivity
  - Narrative
  - Active Citizenship
  - Group Identify

- **Connectedness** – linking learning to a wider world.
  - Connectedness to the World
  - Problem-Based Curriculum
  - **Background Knowledge**
  - Knowledge Integration

- **Intellectual Quality** – making the learning experience more intellectual demands.
  - Higher Order Thinking
  - Metalanguage
  - Deep Knowledge
  - Deep Understanding
  - **Substantive Conversations**
  - Knowledge seen as problematic

- **Supportive Classroom Environment** – expecting students to be responsible for their own learning and expecting high standards.
  - Student Control
  - Student Support
  - Engagement
  - **Explicit (quality performance) criteria**
  - Self-regulation
The second is the notion of **explicit (quality performance) criteria** which is defined as the teacher providing frequent, detailed and specific statements about what it is that students have to do in order to achieve.

When a research supervisor invokes this pedagogy they provide frequent, detailed and specific statements about what constitutes good academic writing and good research. The dilemma with this agenda is that, at the level of doctoral research, there are few articulations about what constitutes good research. Sheehan (1994) is one of a few authors who attempted to make explicit the assessment criteria for academic writing. He suggested that the following principles affected the quality of a thesis.

1. Quality (vs. quantity)
2. Succinctness.
3. Perfect format.
5. Sound methodology.
6. Freedom from error of statistics
7. Meeting objectives
8. Impartiality

When a research supervisor can name their assessment criteria for good research, they can use this agenda to formulate their feedback on their student’s writing, such that the giving of feedback provides the statements of what constitute the assessment criteria for a dissertation.

In my own exploration of this pedagogy (Hill, 2007b) I have attempted to make explicit the assessment criteria I use when I examine practice-based research.

A third application of the productive pedagogy framework is evaluating the research supervisor/student conversations to determine whether they constitute **substantive conversations**. A substantive conversation involves

- **Intellectual substance.** The talk is about the subject matter and the discussion encourages critical reasoning such as making distinctions, applying ideas, forming generalisations and raising questions. There is an emphasis on clear definitions of the terms being used.
- **Dialogue.** There is an emphasis on sharing of ideas and interaction between participants.
- **Logical extension and Synthesis.** The dialogue builds on the ideas of all the participants such that there is an improved collective understanding of the issue.
- **A sustained exchange.** There is a series of linked exchanges and discussion rather than simple question and answer or question and comment.

These four criteria provide benchmarks for evaluating the conversations between supervisor and student to determine whether the conversation is one which is directive, the research supervisor is telling the student what to do, or can be deemed to have been pedagogical in terms of a substantive conversation.
Using the model to identify my own research supervision strategies and to review other lists of strategies.

With this construct map I found that I described my own research supervision more elaborately (Hill, 2007a).

Good teaching
- Making everything explicit and using microskills to teach both academic writing and research practice.

Good management
- Agreements about deadlines and clear expectations my student and I about what is involved in undertaking a research degree

Good relationships
- Good relationships between my student and I.

Good contributions to knowledge
- These are evidenced in that the dissertation has well articulated investigative practice as well as good writing practices.

I have also used this map to review other author’s lists of good or effective research supervision practices. For example, the two lists mentioned at the beginning of this chapter can be represented in the format of this map:

Good Teaching
- Encourage students to write early and often

Good Management
- Take an active interest in students future careers

Good Relationships
- Ensure the partnership is right for the project
- Get to know the students and carefully assess their needs
- Establish reasonable agreed expectations
- Initiates regular contact and provide high quality feedback
- Get students involved in the life of the department
- Inspire and motivate
- Help if academic and personal crises pop up

Good Contributions to Knowledge
- Work with students to establish a strong conceptual structure and plan
- Encourage students to write early and often
- Carefully monitor the final production and presentation of the research

After James, R and Baldwin, G. (1999) - reworked

Good Teaching
- Utilising a repertoire of strategies to achieve supervision.
- Evidence of systematic evaluation of one’s supervisory practice
- Use of literature to improve supervision pedagogy.
- Appreciation of good practice and an understanding of what constitutes a productive research environment.

Good Management
- Management of the process to produce timely and successful completions.
- Establishing clear goals for the student in the light of university requirements.
Good Relationships
- Interest in and enthusiasm for postgraduate research students.
- Regular and productive meetings with the student that provide support and guidance in their research.
- Development of a partnership with the student that introduces them into the research community.
- Open communication that contains supportive and challenging feedback on their progress.

Good Contributions to Knowledge

Conclusion
These models, the construct map of research supervision practice and the sets of intervention strategies are just a start to a research supervisor advancing their practice and becoming more aware and more reflective about this important element of academic practice.

In my own ongoing work supporting research supervisors with strategies for research supervision I have used the framework, described here, as the foundation scaffolding for a series of blogs (http://supervisorsfriend.wordpress.com/). These blogs attempt to illuminate a number of issues related to research supervision and are drawn from my own practice as a research supervisor. Some of the blogs have been inspired by the conversations I have had with fellow research supervisors regarding problems and concerns they have about their own research supervision.

The author
Geof Hill is the moderator of professional development for research supervision at Queensland University of Technology, Australia. He is also the author of the (research) supervisor’s friend (http://supervisorsfriend.wordpress.com/).


Hill, G. (2002). *Promoting congruence between the inquiry paradigm and the associated practices of higher degree research*. Brisbane, Australia. Queensland University of Technology.


