

**Finding my Way from Teacher to Teacher Educator:
Valuing Innovative Pedagogy and Inquiry into Practice**

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This paper is about relationships: between my developing knowledge of teaching and the methods I use for developing that knowledge, between innovative pedagogies and the impact they have had on my teaching practice, and between my long-time critical friend, Tom Russell, and me. In this paper I trace the development of my interest in using innovative pedagogies that support active learning in students. Additionally, I trace the development of my knowledge about teaching through action research and self-study as I strive to develop principles for teaching about teaching. Finally, this paper describes and interprets many of the issues raised by Loughran (2006) with a view not only of articulating my existing epistemology of practice, but also of exploring and developing principles of practice that I wish to enact as a new teacher educator.

Reflection-in-Action as a Preservice Teacher

My undergraduate studies in physics were dominated by a transmission-based teaching style familiar to many students in Canada. The transition between the familiar student experiences as an undergraduate and the unfamiliar, often conflicting experiences as a preservice teacher in a B.Ed. program was challenging, particularly as I realized that my default style of teaching was to emulate the successful Socratic lessons that I had seen all of my life. Thus my teaching practica were spent negotiating tensions between my default inner teacher and the new ideas about teaching and learning that I was exposed to both from associate teachers and preservice courses. The difficulty was to challenge my default assumption that teaching should focus on transmission of curricular content while forming a pedagogy that I could claim as my own.

Preservice Teaching Experiences

My B.Ed. studies in 1997-1998 included a physics curriculum class taught by Tom Russell, with whom I began an extended dialog teaching and learning. This dialog pushed me to identify my core pedagogical beliefs and values while providing an early framework for me to pursue my understanding of teaching. Our critical dialog encouraged me to apply the principles of constructivist teaching to my own thinking about teaching and learning. I became particularly interested in the role of experience in shaping students' understanding of science. In addition, I realized that "powerful perspectives on teaching may take years to understand and develop" (Russell & Bullock, 1999, p. 150). Thus I learned to view my preservice teacher education program as a beginning rather than an end.

Tom taught me to trust my ability to see and learn from my preservice teaching experiences. I came to see my own professional learning as a process of practice, reframing and consolidation. DeMulder and Rigsby (2003) reported that a newfound professional voice was one of the critical transformational elements of their preservice teaching program. I developed my teaching voice by establishing positive professional relationship with Tom and my associate teachers. These relationships allowed me to take risks during my teaching practicum placements. Thus I was able to explore my tacit assumptions about teaching and learning. An increase in self-awareness is characteristic of strong teacher education programs (DeMulder and Rigsby).

Action Research

Action research was a critical component of my B.Ed. program, comprising a major portion of the assessment in a course associated with my practica. For me, it became a powerful structure for developing an authority over my experiences and pushing beyond the technical elements of teaching (Loughran, 2006). My central question concerned whether or not experiments in the classroom should precede or follow instruction on the topic under

investigation. The results (Bullock, 1999) indicated that students used the experiences provided through labs as springboards for discussion. Over one third of the class preferred that experiments precede instruction, a result that encouraged me to further explore the role of experience in learning science.

More importantly, action research provided an early framework for thinking about my teaching. The results of my action research were of secondary importance to its power in showing me how to reframe problems that I encountered in my practice. I learned that, even as a new teacher, I could make powerful observations of my own teaching. I found the narrative aspect of writing the action research report to be particularly empowering because it encouraged me to reflect on my practice explicitly. Teachers in the program discussed in DeMulder and Rigsby's (2003) study also mentioned the motivational power of narrative writing when it came to forming new conceptions about teaching and learning. There was an important interaction between the emphasis placed on the action research assignment in my professional studies course and the emphasis on learning from experience in my physics methods course. The action research project made the process of reflection more explicit and helped me see into my teaching experiences in a different way.

Reflection-in-Action as a Classroom Teacher

In September of 2000 I became a physics teacher at a mid-size secondary school in Toronto. The school culture was strongly biased in favour of traditional approaches to teaching that favoured the preparation of students for academic study at university. As both the youngest member of staff and the most recent graduate of a teacher education program, I initially struggled to find a balance between the school's expectations of my teaching practice and my own pedagogical expectations. I used the innovative pedagogies that I began exploring in my preservice teaching in tandem with action research to further develop my knowledge of teaching and learning. In so doing, I was able to both be true to my developing voice as a

young teacher and to make important insights into how to improve the quality of my students' learning.

Teaching Experiences

Acutely aware of my need to construct an alternative to transmission teaching, I worked to recognize issues and concerns about my practice that would allow me to reframe my professional knowledge. I decided to revisit a teaching strategy from the Project for Enhancing Effective Learning (PEEL) (Baird & Northfield, 1992). This teaching strategy, called Predict-Observe-Explain (POE), played a critical role in reframing my early practice. POE is an innovative practice because it involves students in the process of accessing their prior knowledge of science and using that knowledge to make a prediction about what will happen in a given situation. After the observation, which is often designed to be novel or surprising, students attempt to explain their observation. The format of a POE can vary quite a bit depending on the lesson, but the core feature is that students are given a voice not only to express their prior conceptions about science, but also to develop explanations about science phenomena. By introducing Predict-Observe-Explain activities into my classes in my first year of teaching, I ensured that a teaching strategy that fostered active student learning became routine for the students and for me.

The other innovative pedagogy that I focused on was a series of techniques designed to use writing activities as a way to explore new ideas and consolidate understandings. As a group, these pedagogies are often called Writing-to-Learn, in contrast to passive, familiar writing activities such as note taking and writing laboratory reports (Hand & Prain, 2002). My use of Writing-to-Learn pedagogies arose naturally out of the Predict-Observe-Explain methods I regularly employed. I felt that the exploratory writing that students engaged in during POEs allowed them to think about the predictions and explanations they offered. By the end of my second year of teaching, students in all of my classes were required to maintain

a separate, bound notebook that served as a forum for engaging in exploratory writing about POEs. I was able to write back to the students individually, thereby extending the discussions we had in the classroom.

During my preservice program, both Tom and my associate teachers modelled good teaching which often included both reflection and risk-taking. I decided early in my career to model reflection and risk-taking to my students by being very explicit about the pedagogies I chose and why I thought they could help students learn. Both Predict-Observe-Explain and Writing-to-Learn pedagogies encouraged my students and I to take an active role in exploring introductory physics topics. It is safe to say that my understanding of concepts I learned via transmission-based pedagogy has improved through shared experiences using innovative pedagogies with my students.

Action Research

As my third year of teaching drew to a close, I set out to explore my professional knowledge by recording my thoughts, feelings, and observations about my daily teaching for the entire second semester. My motivation to undertake such a task was twofold. First, I knew that my Master's thesis question would revolve around the role of reflective practice in developing conceptual knowledge of physics, and hence I wanted to further explore the role of reflection-in-action in developing my conceptual knowledge of how to teach physics. Second, I wished to revisit the themes that were addressed in Russell and Bullock (1999), with a view to examining how my themes had evolved or changed. Specifically, I was interested in revisiting my pedagogical perspective and "adding links to my map of teaching" (p. 150). I wanted to examine the role of experience in shaping my conceptual understanding of how I teach physics and further my understanding of the process of reflection-in-action. I used Schön's (1983) epistemology of professional knowledge as the framework for my exploration.

The experience of keeping a daily journal of teaching notes between February and June of 2003 was quite different from the experience of exchanging notes with Tom in 1997 and 1998. The most obvious difference is that time had passed and I was a third year teacher with many more experiences. In addition, I was more ambitious in my attempt at journal writing, as I resolved to report on how I attempted to enact my developing principles of practice on a daily, rather than a weekly, basis.

Two main themes emerged from my experiences. First, keeping notes forced me to consider problems I encountered in my practice, and hence I was able to extend and enrich my conceptions of teaching and learning. Second, the process of summarizing the week's events engaged me in considering the tensions, axioms, and assertions about my practice as I worked to develop an alternative to transmission-based teaching. The written notes forced me to examine problems of practice, particularly those concerned with improving my students' quality of learning.

The most critical assertion that I made concerned the importance of teacher-student relationships to students' ability to construct a physics world-view. Like most new teachers, I was very concerned with making sure I delivered the content of the physics curriculum. Although I regularly used innovative pedagogies such as Predict-Observe-Explain and Writing-to-Learn, I often felt the familiar pressure to cover the curriculum. The experience of 2003 brought the tension between *how* I teach and *what* I teach into sharper focus than ever before: my pedagogy and the low-risk environment that it requires is far more important than the content of what I teach.

In hindsight, I find it difficult to believe that I did not see the importance of relationships sooner. My professional relationship with Tom encouraged me to develop a conceptual understanding of how I teach. I am sure that my attempts to explicate my professional knowledge would not have been very successful without Tom's ability to

challenge me to reframe critical issues and to continually look at the big picture. He has provided me with a broad range of experiences from which I have been able to develop my conceptual understanding. The writing experience taught me that it is the relationship that I have with my students that allows me to provide experiences from which they can build a conceptual understanding of physics, just as it is the relationship that I have with Tom that allows me to develop my conceptual knowledge of teaching. Recognizing the primacy of relationships in teaching represented a major shift in my thinking.

Reflection-in-Action as an In-service Teacher Educator

In September of 2003, I became an in-service teacher educator as part of a pilot project in my school district called Learning Plus. The district referred to us as learning plus teachers rather than teacher consultants, although we our jobs were ostensibly similar to teacher consultants in the district. The critical difference was that learning plus teachers were assigned to a specific secondary school and although we were often involved in district-wide events, our primary responsibility was to both our secondary schools and their associated elementary schools.

In a broad sense, Learning Plus referred to a cross-panel, cross-curricular district wide initiative designed to improve the quality of students' learning, particularly those students who are labelled at-risk. At-risk students, within the context of this initiative, were defined as those students who were struggling to meet the Ontario provincial standards, and hence were in danger of dropping out of school. The learning plus teacher was initially conceptualized to act as an on-site teacher consultant. As such, significant professional development opportunities were mandated to learning plus teachers, particularly surrounding adolescent literacy instruction. One of the reasons for this focus was that the district felt that many of the at-risk students struggled with basic reading and writing skills. Other professional development opportunities were in the areas of change theory, data collection and

interpretation, and adolescent literacy. The district outlined two specific (though not all inclusive) roles for the learning plus teacher:

1. Assist in coordinating and providing preparatory activities for the Ontario Secondary School Literacy Test.
2. Help teachers – through co-planning, and in-class modeling – learn how to embed literacy strategies into the teaching of their subjects in order to better support struggling students with the reading and writing tasks that are required to achieve in these subjects.

My early experiences in teacher education were firmly rooted in what Schön (1983) called the swampy lowlands of professional practice. The school board and the training it provided represented a kind of ivory tower that seemed disconnected from the teaching situations that I found myself in on a daily basis. As expected, there was often considerable resistance to the idea of an in-school teacher consultant. I responded by presenting myself as a resource to help teachers work through professional problems rather than as someone who was simply trying to transmit school-board initiatives and policies.

In-service Teacher Education Experiences

My first foray into teacher education was to work with colleagues who, quite often, had more classroom experience than I did. I participated in monthly training workshops offered by the school over a two year period, only to find that the workshops focused on training me in specific content that I was to share with my colleagues. Paradoxically, there was no attention paid to teacher education literature.

Although the district provided some guidelines for the role of the learning plus teacher, I found myself in the enviable position of being able to define my role within the context of my school. I decided early on that my focus should be on the teachers within my family of schools, rather than the students. I felt that approaching the position as a kind of

resource teacher, where certain students are withdrawn from class, was both outside my area of expertise and unrealistic given the large student population. I chose to focus on supporting the teachers in my school within their subject areas by acting as a critical friend. Thus I came back to the idea of teaching as a relationship that has to focus on sensitivity, honesty, and independence in practice (Loughran, 2006).

A major portion of my role became to engage in team teaching activities that ostensibly supported the development of subject-specific competencies, both with colleagues at my high school and our elementary partner schools. I provided resources and professional development training for staff on issues such as research-based teaching strategies, literacy instruction, and assessment. As I worked with teachers, I was mindful of the lessons that I learned from my action research as a physics teacher: relationships are of paramount importance in teaching. In general, teachers tended to be apprehensive about inviting me into conversations about their practice, so I had to work hard at building a professional relationship that centred on trust. Once teachers were comfortable talking to me about their teaching, the result was often rich discussions about how to improve the quality of their students learning. By moving the focus away from their teaching and toward their students' learning, I believe that I was able to engage teachers on a professional level that was non-threatening and highly productive.

Action Research

Sarason (2002) suggested that teachers should begin by knowing both the learners' starting point and the direction that the learner plans on taking. As such, the first place I started as a teacher educator was to get to know my fellow teachers and find out what they needed to improve the quality of teaching and learning in their classrooms. I then did my best to address those needs by providing the kinds of resources and support that were asked for. The most productive relationships that I had with teachers in my school were those centred on a mutual

concern for students' learning. I was careful to emphasize that my role was a non-evaluative one.

I submit that the most important element of my role as an in-service teacher educator were the in-school meetings that I created for my colleagues. At these meetings, I encouraged groups of teachers to talk about their teaching and their concerns about students' learning. Rather than pushing a district-sponsored agenda, I noticed that encouraging teachers to talk about their practice addressed many, if not all of the external requirements of the school district. In particular, it was useful for teachers to have inter- and intra-department conversations about teaching strategies. The results of these conversations were often team teaching collaborations not only between other teachers and me, but also between the teachers themselves.

Based on my experiences as an in-service teacher educator, I offer the following set of principles as an early framework for my thinking about teacher education:

1. Teachers' professional knowledge is tacit, and professional dialog is a powerful way to make teacher knowledge explicit (Russell & Bullock, 1999).
2. It is important to provide experiences that encourage teachers to articulate their pedagogy in order for them to realize the characteristics of their default teaching style.
3. It is difficult for teachers to change their default teaching style because there are powerful cognitive and social factors that encourage a transmission-based approach to pedagogy.

When I concluded my time as an in-service teacher educator in June, 2005, I anticipated that two years working with experienced teachers to reframe their professional practice would give me a strong base of experience that I could draw on in my work with teacher candidates. I learned a lot about how to help teachers to articulate their teaching style

and how to examine the problems of practice encountered in daily teaching. I was surprised to discover that my assumptions about the ways that teachers learn were inaccurate when applied to my work with preservice teachers.

Reflection-in-Action as a Preservice Teacher Educator

When I began my Ph.D. program in September, 2005, I was excited to share teaching responsibilities with my supervisor Tom Russell. The team teaching arrangement was both novel and appropriate: in the fall term, Tom and I worked as teacher and teaching assistant respectively, while in the second term I became the teacher while Tom was away on sabbatical leave. As a doctoral candidate teaching preservice teachers for the first time, I was quick to notice that my experiences leading in-service activities for experienced teachers did not fully prepare me for working with preservice teachers. Self-study provided a way for me to examine my beliefs and practices in the early stages of forming a personal pedagogy of teacher education.

Preservice Teacher Educator Experiences

For the first four months of the school year, I was the teaching assistant for Tom's physics methods course and his practicum supervision responsibilities. In early October, shortly after the teacher candidates left for their first four-week practicum, Tom challenged me to write about the differences I had noticed between teacher candidates and experienced teachers. I now summarize the differences I noted in terms of three categories: pedagogical stance, subject-matter knowledge and professional concerns.

Pedagogical stance. Experienced teachers have a well-developed pedagogical stance, though they are often not able to articulate it. The pedagogical stance is shaped by past experiences as a student, professional development, departments, and school districts. The justification for making particular choices in the classroom often comes down to statements such as "In my experience..." The difficulty in naming pedagogies often creates

misunderstandings among teachers, administration, and parents. Experienced teachers are also passionate about their pedagogy, and typically only will to discuss it with teachers of the same discipline and grade level.

Teacher candidates have a well-developed pedagogical stance that is almost exclusively shaped by their experiences as a student. It seems as though many candidates are either trying to emulate a favourite teacher or trying to avoid the mistakes they endured as a student. I see their pedagogical stance as more malleable than that of experienced teachers, in part because they are consistently looking to acquire new resources to add to their repertoires. At the same time, teacher candidates are generally looking for comfortable pedagogical approaches, not ones that might feel risky in a classroom.

Subject-matter knowledge. Experienced teachers seem to be self-assured in their knowledge of subject matter, though many rely on textbooks for the acquisition of new knowledge. I found that teachers are proud of their disciplines and that subject-matter experts gain instant credibility with experienced teachers of the same discipline. There is a prevailing belief that a science teacher, for example, is unlikely to say anything of relevance about teaching to an English teacher.

In most cases, teacher candidates are fresh from undergraduate degrees and seem very confident in their subject-matter knowledge. Many candidates seem to feel that their primary role is to transmit that knowledge. Much discussion among candidates seems devoted to what they teach rather than to how they teach.

Professional concerns. Experienced teachers are concerned about the structure of the school system. They feel that there are significant system-level structural impediments that need to be removed so they can do their jobs more effectively. Professional development sanctioned by the district is generally scoffed at, whereas subject-based activities provided by professional organizations are regarded in a positive light.

Teacher candidates seem obsessed with issues of classroom management. They are understandably concerned with controlling a class and many see management as the first order of business when they step in front of a class. Many candidates seem to take the issue of classroom management personally, as a reflection of their character and of their ability to be a teacher.

My initial assertions about the differences between experienced teachers and teacher candidates revealed important differences between the two groups that I needed to consider in developing principles of teacher education. Thus I was forced to face my first problem of practice as a teacher educator: I was not well prepared by my previous experience as teacher consultant. I did not have much time to dwell on this problem, however, because I immediately began accompanying Tom on his visits to teacher candidates on practicum placements. Although I found the environment of a secondary school to be more familiar than that of a Faculty of Education, I was again confronted with a sense of confusion surrounding my role in the development of preservice teacher's knowledge about teaching. Again, Tom challenged me to draw comparisons between my work with experienced teachers and my early work observing teacher candidates in their first practicum. I now summarize the differences I noted in terms of three categories: professional questions, critical friendship, and role of the faculty of education.

Professional questions. Experienced teachers can be adept at framing questions about their practice and are likely to centre on specific issues pertaining to their subject matter and individual students. Subject-matter experts are perceived to be more useful for interpreting problems of practice than teachers from other disciplines or panels. Experienced teachers are able to focus in on one particular element or incident in a lesson for consideration.

Teacher candidates beginning their practica are unlikely to be able to ask questions about how to improve their practice. Success in an early lesson is equated with the ability to

get through a class without a major incident such as a discipline issue or a forgotten lesson item. Teacher candidates tend to focus on the lesson as a whole, often feeling as though the lesson has finished when the teacher-centric portion is over.

Critical friendship. Teaching is ostensibly a personal endeavour and experienced teachers differ in their comfort with other people in the classroom. A successful critical friendship is one that includes a similar amount of risk for each of the teacher participants with absolutely no evaluative component. Once professional trust is established, experienced teachers are able to consider multiple elements of their teaching in a critical fashion. Experienced teachers require positive affirmation of their teaching practice, given that they receive so little feedback on a regular basis.

Teacher candidates expect to have other teachers and Faculty liaisons in the classroom; hence they have an innate predisposition toward accepting critical interpretations of their teaching. Teacher candidates are often unable to process more than two or three criticisms of any one element of their teaching and require a lot of positive reinforcement from both Faculty and associate teachers. In short, they need to know what they are doing well as much as they need to know where they can improve.

Role of the faculty of education. The pervasive view of Faculties of Education is dim at best. Experienced teachers are generally unfamiliar with research in education, with the exception of notions such as multiple intelligences that have been mass marketed. Faculty members are perceived to have little or no role in most experienced teachers' lives, save those who are enrolled in graduate studies or continuing teacher education.

Teacher candidates initially believe that Faculty members should be able to provide lists of best practices for a plethora of teaching situations. Faculties of Education are viewed as places where theory is learned before going out into to schools to practice being a teacher.

It does not take long for many teacher candidates to avail themselves of the popular notion that a Faculty of Education has little to do with their growth as a teacher.

Self-study of Teacher Education Practices

My interest in self-study of teacher education practices grew naturally out of my use of Schön's (1983) epistemology of professional knowledge and the ongoing dialog I shared with Tom Russell over the years. Tom's critical friendship has frequently encouraged me to reframe my understanding of my practice based on his interpretations of my teaching experiences. Given that Tom and me often discussed problems of practice that we encountered in the classes we shared, it was appropriate to use the critical friendship inherent in the self-study paradigm as a framework for interpreting my early knowledge of teacher education. Thus our team teaching context that uniquely involved both university classes and practicum supervision became a rich context for critical friendship and self-study (Schuck & Russell, 2005).

At the conclusion of the fall term I conceptualized my self-study as a series of questions that challenged me not only to minimize the differences between how I taught and what I taught, but also to further explore the differences that I noted in the previous section. More specifically, I saw the differences between my prior experiences in teacher education and my current practices with preservice teachers as a series of problems to help me reframe my developing pedagogy of teacher education. The headings in the previous section provided a useful organizational framework for my six self-study questions:

1. Pedagogical Stance: Do I solicit teacher candidates' prior conceptions about their pedagogy?
2. Subject-Matter Knowledge: Do I provide experiences that encourage teacher candidates to think beyond their subject matter content?

3. Professional Concerns: Do I make the tacit internal structures of a classroom explicit to teacher candidates?
4. Professional Questions: Do I provide opportunities for teacher candidates to frame questions about their problems of practice?
5. Critical Friendship: Do I create an environment of trust so that teacher candidates feel comfortable talking about their pedagogy?
6. Role of the Faculty: Do I present an alternative to the standard theory-into-practice dichotomy by providing opportunities for teacher candidates to examine their practice at the Faculty of Education?

My research questions were intended to go beyond yes-or-no answers; instead they provided a framework for me to think about the characteristics of my pedagogy. My research questions were influenced by Tidwell's (2002) caution against investigating characteristics of practice before finding out if one's practice is enacted in the same way it is intended. Instead of asking, for example, how I solicit teacher candidates' prior conceptions about their pedagogy, I asked if I solicit candidates' prior conceptions of their pedagogy. There is an important distinction between the two questions, namely, that the second question does not involve a priori assumptions about the characteristics of my teaching. In this way I hoped to avoid making assumptions about what I was including in my pedagogy of teacher education; instead, I used the six self-study questions to focus my thinking on the dynamics of my interactions with the teacher candidates.

The primary source of data for the first three questions was a teaching journal in the form of a web log (blog) that I added to after each preservice class that I taught. I found that web-log technology allowed me to quickly jot down some thoughts about my practice regardless of where I was, for a blog can be accessed and modified from any computer with internet access. Blogs also have the advantage of allowing me to share my journal with

anyone I wish, a particularly useful feature given that Tom was away on sabbatical leave during my January teaching. I have selected three critical incidents from my blog that explore each of the three focus questions of my self-study.

1. Do I solicit teacher candidates' prior conceptions about their pedagogy?

I noticed in the fall term that many of the teacher candidates in our physics class would often engage in discussions about what they teach rather than how they teach. I also noticed that a good percentage of the class had a strong interest in astronomy. In the third class of the winter term, I decided to do a media-literacy exercise without labelling it as such. I showed the television special, Conspiracy Theory – Did we really land on the Moon?, that FOX television shows frequently. The program presents about 10 ideas that are supposed to convince viewers that the Apollo moon missions never really happened. As expected, the program drew the teacher candidates into an energetic discussion about the veracity of the claims made, to the point that I abandoned my plan for the remainder of class and put the candidates into groups to refute the claims by applying principles of physics. For example, one of the claims made is that the lunar photographs are doctored because there are no stars visible in the sky. The teacher candidates were able to conclude that the reason no stars are visible in the pictures is that film needs to be exposed for a long time to capture dim starlight.

At the end of class I asked the teacher candidates if they would use this activity with high school students. By not taking up the physics content of the activity, I hoped to get them to focus on the pedagogy. The result was somewhat astonishing:

So What? How and when could a video like this be used pedagogically? The teacher candidates were nearly unanimous in their caution against using the video with grade 9 or 10 students. Their concern seemed to centre on the danger of confusing students with a flashy video. Some candidates suggested that the correct explanations were too difficult for high school students to understand. (Personal web log, January 12, 2006)

Most of the teacher candidates seemed focused on whether or not students would be able to understand the right answer, namely, that the Apollo missions did land on the moon and that the special was based on flawed reasoning. Most candidates felt that it was safer not to deal with the video, despite the fact that that the program appears regularly on some TV stations and students will watch them whether we deal with them in class or not. No one seemed to notice the potential utility of the pedagogy!

2. Do I provide experiences that encourage teacher candidates to think beyond their subject-matter content?

In the middle of January, Tom sent me a PowerPoint file that he had compiled outlining some thoughts from Bain's (2004) *What the best college teachers do*. I decided to use three quotations from the book as an opening activity for one of my physics methods classes. I asked the teacher candidates to select a quotation that was particularly meaningful to them and write a response. One of the quotations dealt explicitly with the role of subject matter knowledge:

[The best professors] were no longer high priests, selfishly guarding the doors to the kingdom of knowledge to make themselves look more important. . . . A sense of awe at the world and the human condition stood at the center of their relationships with those students. Most important, that humility, that fear, that veneration of the unknown spawned a kind of quiet conviction on the part of the best teachers that they and their students could do great things together (Bain, 2004, p. 144).

My account of this to myself reads as follows:

Our discussion seemed particularly poignant at this moment. One of the complaints that I often heard as a teacher consultant was that teachers live in subject boxes. Indeed, I have often overheard the conversations among teacher candidates as they share war stories about their physics and engineering undergraduate programs. Survival is a badge of honour. I

know these discussions well because I have been a frequent participant in them. The risk is, of course, that in our pride we assert ourselves as high priests of the discipline, with knowledge to disseminate to the ignorant masses. Many of the candidates spoke eloquently about the importance of relationships, often sharing anecdotes from their practica. The discussion was an important step in underscoring the importance of how we teach, rather than what we teach. (Personal web log, January 26, 2006)

3. Do I make the tacit internal structures of a classroom explicit to teacher candidates?

This focus was the least apparent in my physics methods course. There was one candid moment, however, when I instigated a discussion about unconscious elements of teaching with some candour about my own challenges in overcoming tacit behaviours:

A critical moment came about halfway through the class. I asked the candidates if anyone would be willing to share an element of teaching that they tried to modify upon returning to their placements in December, perhaps as a result of an associate teacher's comment. I then told them about my tendency to cross my arms when I am nervous or trying to project an air of authority. I told them about where I acquired the habit and the fact that my associate teacher mentioned it to me in discussions in 1997. Finally, I told them that Tom had alerted me to the fact that I was folding my arms in this, my newest teaching situation. The story was received well and opened the floodgates for all kinds of teaching behaviours that they were trying to modify (talking to the board while writing, saying "anyone?" when asking questions, etc.). I feel like it was a real bonding moment between us [myself and the teacher candidates]. (Personal web log, January 5th, 2006)

The primary source of data for questions 4 to 6 was a series of personal reflective pieces that I wrote during the teacher candidates' second major practicum block in February. During this five-week block, I spent a significant portion of every week at the host school, regardless of whether I was scheduled to formally observe a teacher candidate on a given day.

In so doing, I was able to spend a great deal of time interacting with teacher candidates, associate teachers and other members of the school community. At the end of the school year, I shared my reflective pieces with Tom in a two-column table format as a way of inviting him to make comments on my writing. In this section I present excerpts from our dialog that helped me reframe my practice.

4. Do I provide opportunities for teacher candidates to frame questions about their problems of practice?

Shawn	Tom
<p>One of the most important ways that I reframed my practice as a teacher educator was to ask teacher candidates to think about the quality of their students' learning, rather than focusing on their own teaching. By asking teacher candidates questions about the way their students were learning in class, I was able to avoid some of the awkwardness associated with the more standard question: What you think went well in the class that you just saw? In what ways could you improve? Conversations started with teacher candidates that focused on improving the learning in the classroom, for both teacher candidates and students, were far richer and resulted in more spontaneous follow-up than conversations that began in the more standard way.</p>	<p>Your first year in our Ph.D. program has been rich in opportunities for you to rethink your assumptions and practices, starting with the early realization that working with teacher candidates is quite different from working with experienced teachers. This entry shows how quickly you picked up on what we were trying to do together in the fall and elaborated that work to keep the focus on learning as a way to provide access to premises and assumptions about teaching practices.</p>

5. Do I create an environment of trust so that teacher candidates feel comfortable talking about their pedagogy?

Shawn	Tom
<p>One of the advantages of the Queen's program is that teacher candidates are placed in large groups in schools. Teacher candidates frequently reported the importance of being able to talk to other candidates not only for support, but also for developing ideas about teaching and learning. Thus my challenge as a teacher educator was not to create an environment of trust amongst the teacher candidates;</p>	<p>When we taught together in the fall term, we readily agreed on the importance of establishing strong positive relationships as quickly as possible with most, if not all, of the cohort assigned to our school. You must have paid a personal price in time, but being present in the school and eager to begin conversations must be a positive move for both candidates and associate teachers.</p>

Shawn	Tom
rather it was to earn the trust of the candidates themselves. I found that frequent visits to the associate school, particularly around lunch time and the first half hour after school, allowed me to position myself as being available to assist teacher candidates at any time.	

6. *Do I present an alternative to the standard theory-into-practice dichotomy by providing opportunities for teacher candidates to examine their practice at the Faculty?*

Shawn	Tom
There is little agreement as to what the professional studies course that accompanies the practicum supervision should entail. In the Fall term, Tom created an environment that allowed the teacher candidates to openly discuss what was happening to them, both in other aspects of the program and in their practica. During the January classes I endeavoured to provide opportunities for teacher candidates to explore what they felt were critical incidents in their Fall practicum, in order to blur the artificial lines between theory and practice. These practices, initiated by Tom and continued by me, reached their zenith when teacher candidates devoted an entire class at the end of the year unpacking the role that both the faculty and the practicum had in shaping their experiences.	Here you pick up on a theme in the evolution of my own teaching practices. I have always felt the need for more opportunities for candidates to stand back and look at the bigger picture of what is happening to them during a very busy eight-month program. Practicum periods are so busy that university classes are the obvious place but each course often seems to have a full curriculum. In the last two years I rather accidentally moved in this big-picture direction and have been delighted to see the generally positive responses from candidates. When we continue our collaboration in this course next year, each teaching a group and combining classes at times, I hope we can make further progress on this familiar but very complex dichotomy between theory (at Queen's) and practice (in school).

In retrospect I could not have picked a better year to begin my Ph.D. studies, for this was the ideal year for me to gain the personal teaching experiences that will guide the development of my own research. Beginning Ph.D. studies in the USA or Canada seems associated with courses rather than with opportunities to learn from experience. Working with Tom enabled me to not only challenge my assumptions about teaching teachers, but also to use self-study to develop principles of practice and look to the future of my development as a teacher educator. I was able to focus on the problematic in teaching and teacher

education by questioning my assumptions about preservice teacher education and discussing these assumptions with an experienced teacher educator.

The Road Ahead: Still Learning to Teach

The relationship between my knowledge of teaching and the methods I have used to develop that knowledge was critical to my development as a preservice teacher, teacher, and teacher educator. Throughout my career I have used reflection-in-action to discover what my default teaching style is and to reframe problems of practice to develop principles of teaching. As a preservice teacher and a secondary school physics teacher, I used innovative pedagogies such as Predict-Observe-Explain and Writing-to-Learn to encourage students to take an active role in their learning. In so doing, I hoped to help my students improve the quality of their learning as I worked to push beyond my default conceptions of teaching and learning.

My journey into teaching and teacher education has been privileged by Tom Russell's critical friendship, a professional relationship that is particularly significant given that he has mentored me throughout my teaching career—as a teacher candidate, teacher, and teacher educator. Tom was often able to broaden my perspectives on teaching both by validating my practice and suggesting ways to reframe my experiences (Loughran & Northfield, 1998). It was more than fortuitous that I had the opportunity to team-teach a physics methods course and a practicum supervision course with Tom in the first year of my Ph.D. studies. Engaging in a self-study at this early stage in my career as a teacher educator allowed me to realize that my prior experiences working with experienced teachers were insufficient preparation for working with teacher candidates.

By framing research questions that did not make a priori assumptions about how I taught, I was able to investigate the characteristics of my pedagogy. After discovering some of my default pedagogies for teacher education, it is appropriate to reframe the six questions that guided my self-study over the past year. The newly phrased questions encourage me to

again focus on how I teach teachers by encouraging me to develop and enact innovative pedagogies of teacher education:

1. Pedagogical Stance: How do I solicit teacher candidates' prior conceptions about their pedagogy?
2. Subject-Matter Knowledge: How do I provide experiences that encourage teacher candidates to think beyond their subject matter content?
3. Professional Concerns: How do I make the tacit internal structures of a classroom explicit to teacher candidates?
4. Professional Questions: How do I provide opportunities for teacher candidates to frame questions about their problems of practice?
5. Critical Friendship: How do I create an environment of trust so that teacher candidates feel comfortable talking about their pedagogy?
6. Role of the Faculty: How do I present an alternative to the standard theory-into-practice dichotomy by providing opportunities for teacher candidates to examine their practice at the Faculty of Education?

Although I am in the early stages of developing a pedagogy of teacher education, the ways in which I teach and research as a teacher educator are defined by what I think is the most important issue in teacher education: teaching teachers. In this paper I have described my quest to continually put pedagogy above content, largely thanks to an ongoing dialog with a more experienced teacher educator who helps me to frame my problems of practice. I have also described my engagement in simultaneously doing and researching teacher education. Although it is possible to consider the pedagogy of teaching teachers and the research on teacher education separately, they are inevitably intertwined in both my practice and scholarship. Finally, I have discussed the differences I observe between teaching experienced teachers and teaching preservice teachers. The most important consequence of this

observation is that I am now even more committed to both explicating and questioning my tacit assumptions about how teacher education is conducted. As Loughran (2006) explicitly argues, teaching is a discipline in its own right and thus research in education should turn a lens on itself to reveal what teacher educators understand about the process of learning to teach. I anticipate an engaging career pursuing the study of teaching as a discipline.

My emerging pedagogy of teacher education focuses on describing and interpreting my tacit knowledge and assumptions explicit by exploring my default teaching behaviours. Most importantly, however, my pedagogy of teacher education rests on my desire to offer my knowledge, assumptions, and practices to the critical scrutiny of myself, my students and most importantly my critical friends. I am aware of the powerful default teaching behaviours that I still have and so must constantly work to engage and challenge myself, those I teach and those who are my critical friends. I have much to learn on my journey of thinking about teaching and learning and I am confident that self-study will help me continue to learn and teach about teaching.

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