This paper is a personal interpretation of how two half-year daily teaching assignments in grade 12 physics influenced the career of a science teacher educator at Queen's University (Kingston, Ontario, Canada). The teacher educator felt that this experience helped him speak to his preservice teachers more realistically and convincingly about the daily challenges that teachers face. The paper argues that students can best learn from their own experiences by having them take charge of their own professional development and that extensive teaching experience both before and after course work is needed. At Queen's University, a nontraditional approach to becoming a science teacher involves alternating paid work terms with academic terms. This approach, which creates a pattern of "experience-coursework-experience," is seen as appropriate in valuing and understanding the role of experience in learning to teach. Educational research focuses on the importance of personal experience in the learning process, but teacher education seems not to have taken this focus into its own programs by arranging for its students to have significant personal experience of teaching both before and after their education courses. (JDD)
RETURNING FROM THE FIELD: DID RECENT, RELEVANT, AND SUCCESSFUL TEACHING EXPERIENCE MAKE A DIFFERENCE?

Tom Russell
Faculty of Education
Queen's University
Kingston, Ontario
Canada K7L 3N6

Internet: RUSSELLT@QUCDN.QUEENSU.CA


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INTRODUCTION

This paper is a personal interpretation of how two half-year daily teaching assignments (in 1992-93 and 1992-93) in Grade 12 physics have influenced my career as a science teacher educator. It would be only too easy to assume that recent teaching experience in a school would be "automatically and transparently" advantageous to the new science teachers with whom I work. Instinctively, I avoid such an assumption. Only during 1993-94, with a small measure of distance from my recent school teaching experiences, am I beginning to understand how those experiences have been of invaluable assistance in my work.

The focus of the paper is on how the various student teachers I work with have their practical teaching experiences (in relation to course work). Virtually all pre-service teacher education programs require a number of weeks of student teaching experience, in "bundles" of varying lengths and in various positions with reference to the sequence of course work. There is no consensus among teacher educators of an "ideal" arrangement of these two very different elements of a teacher education program.

Here I describe the particular mix of course work and practicum experiences in the Queen's University setting in which I teach a physics method course for new teachers. Then I describe ways in which I am developing a better understanding of how to help student teachers learn from their own experiences and how recent events have led me to believe even more strongly in the importance of extensive teaching experience both before and after course work.

THE CONTEXT: HOW MUCH PRACTICUM EXPERIENCE AND WHEN?

There are three routes to qualifying as a science teacher in the Faculty of Education at Queen's. The traditional route involves applying to education after completing an
undergraduate degree; entrance decisions are based equally on a score calculated from the undergraduate transcript and a score calculated from two separate readings of a two-page statement of personal experience. This program provides three three-week practice teaching assignments, two of which are well into the second half of the B.Ed. program.

The concurrent route involves applying from high school to study education and science simultaneously through university. This route is available at two universities, Queen's and Trent (in Peterborough, Ontario, a two-hour drive from Kingston). Brief practice teaching experiences in the first three years are followed by a three-week fall term placement in the final year; it is during the fall term that all remaining education courses (about two-thirds of the total) are being completed. Then the winter term is devoted entirely to practice teaching, for four weeks in a grade 7-8 assignment and for 10 weeks in a high school science department. A recent option permits entry to the concurrent program in science after completing the first two years at Queen's, but these students will not have the extended internship in their final term. It should be noted that student teachers do not return to Queen's after the final long practicum period.

The third and newest route is available to students in science at the University of Waterloo, Ontario's cooperative university, where paid work terms alternate with academic terms. (Waterloo is a five hour drive from Kingston.) Upon application in their second year at Waterloo, students in good academic standing may be admitted to the B.Ed. program at Queen's and begin their formal work in education with a 16-week work term in a high school (after a 5-day introductory workshop). These students then come directly to Queen's for one term in which they complete all education course work. After one or two further academic terms at Waterloo, they return to schools for a second 16-week work term that is evaluated to satisfy the practicum requirement of the Queen's B.Ed. The degree and recommendation for certification are not awarded until the B.Sc. degree at Waterloo has been completed.

The concurrent and Waterloo routes to science teacher certification at Queen's both offer longer practicum periods, which are an apparent advantage to those who seek entrance to our teacher education program before or during their undergraduate studies. If one sees value in making sense of in-school teaching experience in the university setting, then the obvious shortcoming of the concurrent route is the completion of all course work before the extended teaching term. Only the Waterloo route offers extensive classroom experience both before and after the education courses. Under present arrangements, there is little or no contact with Queen's during the Waterloo students' second teaching term, although electronic mail may soon change this situation. I have become increasingly attentive to these programmatic differences by teaching all three types of students in 1991-92 and again in 1993-94.

RETURNING FROM THE FIELD

"Recent, relevant, and successful" experience is an expectation for teacher educators in the U.K., indicating an orientation in that country to the importance of an understanding of the practice setting. I do not know when this expectation was formalized or whether it emerged in response to a sense that teacher education programs were "too theoretical" and too distant from the schools. The shift of teacher education to the schools since 1991 in the U.K. means that two-thirds of the pre-service program is located within schools that form
partnerships with the universities where the programs are based. Perhaps recent, relevant, and successful teaching experience is less important now, but it remains an interesting expectation.

I have never been aware of a similar expectation for teacher educators in Canada or the U.S., although my physics method students since 1991 have certainly not held my experience against me. I am confident that they can "hear" a difference in my stance toward schools, and I am confident that I can speak more realistically and convincingly about the daily challenges that teachers face. I can speak about individual students without hesitation, from those who do very well to those who barely pass and those who fail. With the confidence and humility of personal experience, I can speak about students with handicaps such as being deaf or confined to a wheelchair, and about teaching every day with someone standing nearby translating my words into sign language. In these senses, as in others, experience made a profound difference, and my professional world will never be the same.

Although I acquired a great deal of valuable experience by returning to the high school teaching context, my basic commitments are to the challenges of preservice teacher education. My ability to carry out those commitments are informed and assisted by the recent and relevant teaching experience. I still insist on taking critical perspectives on what is done both in teacher education programs and in science classrooms in secondary schools. I still insist on taking a critical perspective on my own teaching, in both settings. In earlier papers (Russell, 1992, 1993) I have described aspects of my recent school teaching experiences and the effects of moving back and forth between "two cultures."

RECENT AND RELEVANT EXPERIENCE HIGHLIGHTED THE IMPORTANCE OF LISTENING TO SELF AND STUDENTS

Almost a decade of research built on Schon's (1983) idea of a "reflective conversation with the materials of the situation" as a central element in the development of professional knowledge of practice was always present as the backdrop to my "recent, relevant, and successful practice." Each day's realities of homework problems to be clarified, demonstrations to be carried out, concepts to be explained, and (occasionally) unit tests to be reviewed for meant that "theoretical perspectives" about how teaching "ought to be done" often took second place in my priorities. Yet the payoff and the purpose of acquiring "recent, relevant, and successful experience" always came back to "How am I learning from experience?" and "What am I learning that I can teach to others about learning from experience?"

In 1992-92 (my second half-year of daily teaching) and 1993-94, my research colleague Hugh Munby has been an invaluable "critical friend" as we worked to relate my two types of teaching to our continuing study of the development of teachers' professional knowledge. It was Hugh who helped point the way to recognizing the "authority of experience" (Munby & Russell, 1994) that has been the focus of our research in 1993-94. I recognized immediately that this was the essential contrast that could sharply focus what I was trying to do in my physics method course. When pre-service students arrive with a strong expectation that they will learn to teach by relying on the "authority of other teachers' experiences" and on the "authority of their professors," they run the risk of adopting beliefs and positions from those who are in a position to "speak from experience." The problem does
Conclusions transfer without the accompanying experiences on which the conclusions are based. When the individual who hears the advice interprets words in the light of (limited) personal experiences, the transfer of advice is inevitably partial and incomplete.

In 1993-94, the physics method course has developed in ways that bring it much closer to what I have always wanted to do: have student teachers explicitly recognize the significance and the importance of "taking charge of their own professional development." In this first full year away from "recent experience" of secondary science teaching, I have achieved several personal objectives. By establishing small groups of four and by assigning each person to one of six committees on the very first day, a tone of relying on others and contributing to their own learning was encouraged from the outset. I was apprehensive about the possible "miscommunication" that could occur when I invited each person in the course to participate formally in a research project so early in the program. Even though educational research is unfamiliar to them, the students responded positively and 17 of 25 eventually joined our study. It seemed very sensible to them to explore how people learn to teach by asking and involving those who are learning to teach. Details of these developments are discussed from those participants' points of view in a related paper (Russell, 1994).

The success in having this year's students attend to their own judgements of their teaching and to the reactions of their students has been greater than expected and very encouraging. When they link this attention to their growing sense of confidence, it is even more encouraging. In my own "recent, relevant and successful experience," I worked to listen to self and students while also drawing on the expertise freely offered by (and gratefully received from) the teacher who made it possible for me to teach. I had many "possibilities" in mind from my own reading of educational research, but my first priority was always that of providing an intelligible and productive course to my students, one that did not stray too far from the norms of the school and the science department. Without the recent experiences teaching high school physics, this year's accomplishments in encouraging new teachers to learn from experience would not have been possible.

EXPERIENCE AND COURSE WORK IN PRE-SERVICE TEACHER EDUCATION

Returning from the field has "opened my eyes" to the differences among the three routes to science teacher certification at Queen's. I see our "standard" program at Queen's as highly traditional, even antiquated, and bearing a close resemblance to "normal school" assumptions and procedures. I have always felt it inappropriate to have one-half of the first term's course work completed before the first teaching practice assignment. It is the practice teaching experience that always seems to have the effect of finally showing the new teachers what it is they really need to learn. Yet an extended period of course work means that the patterns of expectations for and interactions during course work are well established before the picture of what they most need to learn has come into focus as a result of personal teaching experience. I have also been disappointed that the eight-month program seems to end with a whimper rather than with a celebration and sense of achievement. I now see more clearly how the block of initial course work and the relative inattention to school experiences (beyond the inevitable discussions when they return from each placement) contribute to the overall tone of the program.
The "experience-course work-experience" pattern of our program in co-operation with the University of Waterloo seems far more appropriate to recognizing, valuing, and understanding the role of experience in learning to teach. When I worked with that group in 1991-92, I had just completed my first teaching of the Grade 12 physics course and I was only beginning to understand how it had affected me. Working with a similar group in 1993-94 has been remarkably different, and more successful, for several reasons:

* I better understand what is involved in building on the students' extensive teaching experiences.

* The student teachers were asked to bring a portfolio that summarized their first teaching experiences.

* I share teaching of the group with a colleague who also has a commitment to the importance of "learning from experience."

* The students have responded enthusiastically to the invitation to share and interpret their experiences.

Excerpts from the "story" being prepared by one member of this group help to illustrate these points:

I don't know that I have "learned" to teach; thinking back, there were many things that I just did. There certainly must be a lot of validity in what Tom said about the fact that we already knew how to teach before the T1 term started and before we came to Queen's for courses. Teaching from September to December gave us a chance to really think about what we already knew, and what we didn't know. Now I feel that I have context for most of the things I am doing here at Queen's. I can remember preparing for school last September, thinking that I was ahead of the game. I thought I would read [some of the current documents for teachers, but] I recall putting them down because I was wondering what they were talking about and I didn't really have the context to make sense of anything they were talking about. Now I can read those same documents and books and begin to understand. What is it that transformed me in the past four months? Something certainly did, and I hope that writing this will help me and others to discover what that something is.

Most of the teachers that I talked to [while teaching] said that I would learn more in my first year of teaching than I would at teachers' college. I would expect that because that is how most of them learned to teach. They did not have the opportunity to do things the way I am doing them. While most of them were at their Faculty of Education, they had little if any context for what they were learning (and is that really learning?). I and the others in my program have at least four months of context, and even more if you consider that the four months where we were in control reopen the net that contains the other 13-14 years of context [of schooling] we have inside us. To me, this is a burning issue, not only for my learning but for my future students' learning. What should be first? The theory or the context? I would also have to pose
the following question to myself: Is it really context before you have the theory? That is to say, I see the four months (and 14 years) as context now that I am enveloped in the theory. During the four months of teaching, I don't think I saw it as context as I do now that I am presented with and have the opportunity to reflect on the theory using the context. I certainly feel that I am learning more about teaching now than the teachers I talked to expected me to.

CONCLUSION

Recent, relevant, and successful teaching experience made all the difference, and the story is far from over. My own recent teaching experiences in a school are making it possible for me to see and respond to the experiences of those learning to teach in ways I could never have anticipated. Here I have focussed on an aspect of preservice teacher education that has always puzzled me and that I now see more clearly and completely. These new frames for interpreting the significance of duration and sequence of practice teaching experiences in relation to course work are a direct result of my recent experiences teaching high school students and of my experiences teaching student teachers following different program patterns.

Much of the literature of educational research in the last 25 years, from the heyday of "learning by discovery" to the recent interest in constructivism, has focussed on the importance of personal experience in the learning process. Teacher education conducted on longstanding patterns seems not to have taken this focus into its own programs by arranging for its students to have significant personal experience of teaching both before and after their education courses. As the student teacher whom I have quoted puts it so well, he is learning more because he has "context," yet he only sees it as context for learning because he has stepped out of the practice situation, knowing that he will return. Our other program patterns at Queen's University lack the extensive initial experience that only becomes context in the light of theory. Our more traditional program pattern also lacks any experience longer than three weeks, and this limits significantly the nature of the questions about teaching generated by that experience.

REFERENCES


