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Chapter 4

A skillful start to a teaching career: a matter of developing impactful behaviors, reflective practices, or professional knowledge?

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Abstract

Despite considerable change in the content and structure of teacher education over the last 40 years, the pedagogical framework of most programs has remained remarkably consistent. Most programs involve three pedagogical phases: (1) studying about practice, (2) observing and trying out practice under simulated or actual classroom conditions, and (3) comparing and elaborating practice in classrooms. Within this framework, three orientations have evolved, the most enduring of which has emphasized the teaching of what may be termed "impactful" behaviors. In the last two decades the focus has shifted initially to a second orientation, the development of reflective practices, and most recently to a third orientation, the development of professional knowledge. After comparing the three orientations, the chapter examines the development of the professional knowledge orientation in terms of how best to reconstruct the pedagogical framework in order to help beginning teachers concurrently use practical and propositional knowledge in an integrated manner.

Every initial teacher preparation program wants its graduates to enter the workforce with sufficient skill to be successful in their first years of teaching, and, indeed, throughout their careers. Though first-year teachers assume the same responsibilities as twenty-year veterans, they are, in most cases, skilled beginners immersed in the twin demands of teaching and learning to teach in their first *real* job. Mindful of the enormous pressure on first-year teachers to perform well from the moment they arrive, teacher educators have responded by refining, intensifying and, occasionally, reconceptualizing how best to ensure that their graduates have the skills they need to cope with these demands. But as pedagogy changes so has the definition of what student teachers need to develop. This chapter examines how initial teacher

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preparation programs (mainly in North America[1]) have reconstructed their pedagogical approaches in order to support their students in making a skillful start to their chosen profession.

Despite considerable change in program structures, curriculum, and instructional patterns, the core pedagogy of initial teacher preparation programs has changed very little. A three-phase pedagogical framework is used in most initial teacher preparation programs to promote skill development. This process typically provides student teachers with repeated, varied, and extended opportunities to study, observe, and try out discrete and complex teaching skills. These three phases combine strategies in schools and universities in ways that facilitate the development of the skills teachers require to function in classrooms. Through the lens of this framework, the three pedagogical orientations teacher educators have adopted and adapted to help student teachers learn to teach are reviewed. The three orientations — impactful behaviors, reflective practices, and professional knowledge — have different conceptions of the skills needed to teach effectively, different notions of how these skills develop, and different methods for utilizing and interrelating the three pedagogical phases. The impactful behaviors orientation is historically significant, has been extensively reviewed, and consequently, is summarized but not elaborated in this chapter. Instead, the focus is on studies of the more dominant orientation in recent years, the development of reflective practices, and on the emerging interest in the development of professional knowledge. For this latter orientation, a pedagogical profile of how a program might occur is created, a proposal that could be part of a new era where a skillful start to a teaching career emphasizes the development of knowledgeable beginning teachers.

1. Pedagogical framework

In its most basic form, the pedagogy of skill development in initial teacher preparation programs has been straightforward. Student teachers are introduced to the skills, provided opportunities to try these skills out in relatively risk-free situations, and then placed in schools where they can further develop these skills in actual classroom settings. To focus the comparisons across the three orientations, I will examine three interrelated pedagogical phases: (1) studying about skills; (2) observing and trying out skills under simulated or actual classroom conditions; and (3) comparing and elaborating skills in classrooms.[2]

Studying about skills usually occurs in a university setting (e.g., seminar, lecture, independent study) and involves student teachers in an in-depth examination of the

[1] For the purpose of this article, I rely on North American sources. This in no way diminishes the work in other parts of the world on skill development, but North America has had a particularly intense interest in this area for some time (e.g., the emphasis on competency-based teacher education in 1970s), with numerous studies which are frequently cited in references around the world.

[2] Joyce and Showers (1980) have further defined this regimen into: (1) presentation of theory; (2) modeling and demonstration; (3) practice under simulated conditions; (4) structured feedback; and (5) coaching for application.

rationale for and conceptualization of a particular teaching skill or set of skills. *Observing and trying out skills under simulated or actual classroom conditions* can happen either in lab-like facilities in a university or under somewhat controlled conditions in a school. Pre-service teachers can engage in tasks such as watching more experienced teachers using a designated skill or set of skills (e.g., in person, on a video or CD-ROM); incorporating the skill or set of skills in a teaching episode with peers or a small group of students; receiving either explanations of an observed teacher's skills or feedback about the consistency and appropriateness of their own trials with skills previously studied. *Comparing and elaborating skills in classrooms* takes place in schools often during extended practice teaching assignments. In this situation, beginning teachers can vary the circumstances under which they apply the particular skill or set of skills; seek formal and informal comment and advice from peers, cooperating teachers, or instructors about their developing proficiency with desired skills; or review and analyze alternative or more advanced forms of these skills during on-site seminars.

Before the orientations are described, three aspects of the above pedagogical framework deserve mention. First, the framework recognizes the importance of learning in different contexts, two *in classrooms* (studying about skills in a university classroom, and comparing and elaborating skills in classrooms in a school) and the third (observing and trying out skills under simulated or actual classroom conditions) in a contrived environment in either a university or a school. Second, the framework provides for different strategies requiring different forms of interaction and discourse in each phase. Third, the framework depends on rigorous and intense connections across all three phases in order to maximize skill development, however defined. Each pedagogical orientation has its own stance on how to best address the challenges posed by the dynamic dimensions of the above framework.

2. Impactful behaviors orientation

The impactful behaviors orientation emerged with some prominence in initial teacher preparation programs between the late 1960 s and early 1980 s, a process-product research period dominated by the quest to determine what constitutes effective teaching. The research sought to identify teaching behaviors most associated with improving student performance. In the hands of teacher educators, these behaviors became what student teachers need to acquire and use in order to develop some level of technical expertise in the classroom. Consonant with this effectiveness era of research, initial teacher preparation programs also sought precision and prescription in the instructional approaches adopted to guide student teachers in how to use these impactful behaviors, increasingly turning to training methods as the pedagogy of choice. For an excellent review of training methods in teacher education, see the special issue of the *International Journal of Educational Research* edited by Tillema and Veenman (1987).

Table 1 reorganizes the findings of Cruickshank and Metcalf (1990) in their review of research on training in teacher preparation into principles relevant to the

Table 1
Principles of training

Studying about skills
- Establish clear performance goals and communicate them to learners
- Ensure that learners are aware of the requisite level of skill mastery
- Determine and build upon learner's present skill level
- Introduce only a few basic "rules" during the early learning stages
- Ensure a basic essential conceptual understanding of the skill to be learned and when and why it is used

Observing and trying out skills under stimulated and actual classroom conditions
- Demonstrate what final skill performance should look like, drawing attention to salient skills and sub-skills
- Provide opportunities for learners to discuss the demonstration (identifying key elements)
- Provide sufficient, spaced skill practice after understanding of the skills has been developed, in both sub-skill and whole-skill acquisition
- Follow early practice of skill with knowledge of correct and incorrect performance/results

Comparing and elaborating skills in classrooms
- In later applications, provide less or delayed knowledge of results, to encourage self-evaluation
- Provide for transfer of training that is enhanced by maximizing similarity between the training and the natural environment, overlearnng salient features of the skill, providing extensive and varied practice, using delayed feedback, and inducing reflection and occasional testing
- Provide full support and reinforcement for use of the skills in natural settings

three-phase pedagogical framework mentioned earlier. Skills are developed through carefully sequenced, progressively more complicated and structured tasks. Student teachers have repeated opportunities to practice the desired behaviors, receive timely and performance-specific feedback about their level of use of these behaviors, and participate in periodic reviews of and discussions about their understanding of the underlying principles which maximize the impact of these behaviors. While these pedagogical tactics manifest themselves in different forms across all three phases, the technology of training is especially developed for the first two phases: studying about skills, and observing and trying out skills under simulated and actual classroom conditions.

To enhance the study of skills (beyond such traditional instructional approaches as lectures, seminars, or directed readings), teacher educators in this orientation provide written or video protocols (Cruickshank, 1987) and case studies (Sykes & Bird, 1992) illustrating how each behavior is enacted in the classroom. When it is time for student teachers to observe experienced teachers who effectively use the preferred behaviors or to try to incorporate such behaviors into their own teaching, teacher educators arrange various contrived scenarios. Examples include:

- demonstrations where student teachers can observe and systematically record (with the aid of observation checklists) key attributes of the desired behaviors (Carter & Anders, 1996);
- role plays or simulations where student teachers are in situations which permit some application of designated behaviors (Cruickshank, 1988); and
- microteaching with peers or small groups of students where pre-service teachers have the chance to practice a behavior under conditions which simplify and

concentrate the activity by reducing the "class size, lesson length, and task complexity" (MacLeod, 1987, p.532). In these laboratory-like experiences, student teachers learn behaviors in a controlled and supportive environment.

The impactful behaviors orientation continues to evolve (e.g., simulations are available through interactive videodisk technology; see Rogers & Reiff, 1989) albeit primarily in terms of advancements in university-based strategies for the first two phases of the pedagogical framework. Teacher educators maintain their commitment to the power of acquisition; that is, once student teachers have been trained in the use of the preferred behaviors, they are capable of entering the workplace to further refine their skill in applying these behaviors in ways that eventually affect student learning. As a consequence, the technology for the third phase, helping student teachers compare and elaborate their acquired behaviors in classrooms, is relatively less developed. For some, this leaves the potential of a training model unrealized (or at least untested). "Little that presently passes as a proxy for training is such including the vast majority of student teaching" (Cruickshank & Metcalf, 1990, p.491).

The most successful programs designed to promote the development of teaching behaviors have more often been for experienced teachers and with strategies that equally attend to and connect all three pedagogical phases (Borko & Putnam, 1996; Joyce & Showers, 1996; Cruickshank & Metcalf, 1990). Where in-service teacher education programs have made some inroads in coupling strategies used in schools to compare and elaborate classroom skills with strategies devoted to studying about, observing and trying out skills in more "cocooned" settings, initial teaching preparation programs have struggled and usually failed to do so. To a large measure, this discontinuity results from the inability to make effective linkages between what student teachers learn on campus and what they learn in schools. Even when placements in schools alternate with periods in college, there is little or no assurance that the behaviors acquired by student teachers in one context will ever be used in the other context. The next orientation offers one pedagogical response to this transfer problem.

3. Reflective practices orientation

The emergence of the reflective practices orientation followed a period in which the empirical base underlying the impactful behaviors orientation came under increasing criticism, in part from researchers committed to quite different research traditions, and in part from theorists and educators with a different image of teaching. Despite some compelling discoveries about the impact of certain teaching behaviors on student learning (Brophy & Good, 1986; Dunkin & Biddle, 1974; Good, Biddle, & Brophy, 1975; Good & Brophy, 1973), the yield from process-product research has not been translated into a comprehensive framework to guide the act of teaching or, by implication, the development of pre-service teachers.

While searching for the most salient and impactful teaching behaviors dominated much of the research in the 1970 s, other researchers began to explore such areas as the

ways teachers think about what they do (Clark & Peterson, 1986; Peterson & Clark, 1978; Winne & Marx, 1977). Still others explored the many factors teachers have to address in their ongoing interactions in the classroom (Peterson & Walberg, 1979; Shavelson, 1976), and the complex, varied, and dynamic circumstances under which teachers work (Dreeben, 1970; Jackson, 1968; Lortie, 1975; Smith & Geoffrey, 1968).

As this broader more qualitative research agenda grew in the 1980 s and 1990 s, the more competency-based image of teachers as technical experts (in the impactful behaviors orientation) had a host of competing images of teachers. They included the reflective (Schon, 1983) or contemplative (Drake & Miller, 1990) practitioner, the curriculum maker (Clandinin & Connelly, 1992) or decision maker (Smith, 1989), the innovator (Doyle, 1990) or reformer (Thiessen & Kilcher, 1992), the moral steward (Goodlad, 1990), and the transformative intellectual (Giroux, 1988). For most of these competing images, teaching involved reasoned and seemingly spontaneous judgments, and ongoing adaptation to the unpredictable and changing demands and conditions of classroom life. Student teachers have to learn how to cope with the personal and situational variability of the job, to make both considered and defensible decisions about what they do. The reflective practices orientation concentrates on those skills which help beginning teachers think through what they have done, are doing, or are about to do.

Skills in this orientation refer to processes, each of which consists of a set of actions (e.g. models, frameworks) organized to respond to one of the core functions in teaching. One example of core functions (as standards for their initial teacher preparation programs) is the following set of principles developed by the Interstate New Teacher Assessment and Support Consortium (INTASC, 1993) and now used by many Departments of Education in the United States:

- knowledge of subject matter and how to make it accessible to students,
- understanding of how to foster learning and development,
- ability to create learning experiences adapted to the needs of diverse learners,
- use of teaching strategies that foster critical thinking, problem solving, and high levels of performance,
- ability to create a positive, purposeful learning environment,
- knowledge of how to foster effective communication and collaboration in the classroom,
- ability to plan instruction based on subject matter, students, curriculum goals, and the community context,
- understanding and skilled use of a wide array of assessment strategies,
- ability to reflect on, evaluate, and improve teaching and learning, and
- ability to collaborate with colleagues and parents to support student learning.

In an initial teacher education program oriented to the development of reflective practices, student teachers learn to work with processes relevant to such core functions as those embodied in the above INTASC principles. The processes provide cognitive maps and pathways for determining how and why to choose one course of action over another.

While there is an extensive literature relevant to the reflective practice orientation, the conceptual rigor and empirical foundation of this work are uneven and less developed. Moreover, in keeping with the recognition that process-product research with experimental designs had yielded a limited range of conclusions, the goal of finding model programs that were universally more effective was abandoned. Situational variation was recognized as of critical importance for both teachers and teacher educators. Hence, the thrust of these programs was to expand the range of teacher education practices and to improve new practices by formative evaluation, and to involve various stakeholders, especially those in schools connected to the program. In particular, new programs in this orientation focused on increasing the time student teachers spent in schools and on redefining the distinct and shared roles of teacher educators and cooperating teachers.

From the numerous published reports on program innovations in support of the reflective practice orientation, I concentrated on those that met two criteria. First, the report must include a detailed program account, including the conceptual framework, the primary structures and strategies, and links between campus-based and school-based components. Second, the report must include empirical evidence of the impact of or experience in the program. From this set of reports, ten were chosen to illustrate the range of program innovations used to develop reflective practices in beginning teachers. These are summarized in Tables 2 and 3.

Table 2 summarizes the pedagogical strategies used in five initial teacher preparation programs to improve the discipline-based teaching processes of student teachers. Wilson and McDiarmid (1996) described a final year methods course in secondary school history and social studies where student teachers examined in greater depth teaching and learning subject-matter knowledge. McDiarmid (1990) introduced field experience into an early course in elementary school mathematics education with a teacher, whose practices challenged the assumptions about teaching and learning held by most student teachers. Rovegno (1992) described strategies for an elementary school physical education course, whereby student teachers alternated between university seminar and school-based practicum's in "plan — teach — reflect on teaching" cycles to build an understanding of how to stimulate motor development. Ross (1988) combined a secondary school social studies methods course, a directed field experience, and student teaching in a social studies professional semester to develop more critical and defensible theories about teaching. The final example concerns part of a semester long methods course that integrated elementary school mathematics and science and the accompanying student teaching practicum. Bagheri et al. (1991) engaged student teachers in the study of key concepts and structural features of the two disciplines, the analysis and application of a range of teaching approaches, and the critical review of curriculum resources and practices. These program innovations focus on those processes that enable student teachers to translate their understanding of a discipline (content, explanatory structures, methods and processes) and of the interests and motivations of students into effective pedagogical practices in classrooms.

Other initial teacher preparation programs within this orientation emphasize more generic instructional processes. Table 3 illustrates five such initiatives.

Table 2
Reflective practices: discipline-based strategies

Focus	Pedagogy		
	Studying about skills	Observing/trying out skills	Comparing/elaborating skills
Simultaneously examining history, the teaching of curriculum reforms in history and social studies, and the perspectives and experiences of learners (Wilson and McDiarmid, 1996)	• Cooperatively planned and taught by professors from three area: social studies, education, and history • Analytical essays on four critical events in US history • Analysis of cases of teaching history and social studies • Critical review of key documents in movement to reform history and social studies • Development of an inquiry-oriented unit of study	• Write case studies based on observations and interviews with two high school students who differ from beginning teachers in such areas as ethnicity, social class, or school achievement • Weekly guided observations of experienced teachers to examine their approaches to subject matter, designing curriculum, and teaching and learning	
Challenging basic assumptions of teaching and learning mathematics (McDiarmid, 1990).	• Discussions and papers on operations with positive and negative numbers • Written explanation of how they solve a problem using positive and negative numbers. Followed by discussion that compares how they were taught to the approaches used by the observed teacher • On a final examination, compare a videotape of a teacher using computers and direct instruction to teach operations with integers to fourth graders to observed teacher (see next column)	• Observations and interviews with elementary teacher whose orientation is different from most of beginning teachers • Observations of students talking about positive and negative numbers in small groups • Guided clinical interviews to explore grade 3 students' understanding of operations with positive and negative numbers • Design, research, and write an account of teaching subtraction of negative numbers to someone they know	
Developing pedagogical content knowledge in physical education (Rovegno, 1992).	• Discussions about children's development of motor skills, curriculum design (task structure and	• Design and practice in the use of observation plans	• Once-a-week teaching episodes in a nearby elementary school. Conduct individual lessons and a

	sequence), and anticipation of children's movement responses in relation to various instructional actions		five-lesson unit. Evaluate children's movement responses to each lesson (and its objectives) and the unit. Maintain a dialogue journal in part based on their reflections on lessons audio-taped and in part based on interaction with the teacher educators (who reviewed their journals and two videotaped lessons)
Constructing a "well-grounded" rationale for social studies teaching (Ross, 1988).	• Seminar to discuss beginning teachers' conceptions of teaching, learning, and schooling • One week post-student teaching seminar to analyze and assess performance in schools (based on action research cycles) and to set goals for first year of teaching	• Structure observation assignments to document such areas as teacher planning, teaching approaches, school-community links • Teaching episodes — peer teaching, micro-teaching, "mini-lessons" — to develop some capacity with social studies teaching methods	• During student teaching block, work with "center professors" in a weekly seminar where beginning teachers are introduced to action research which they in turn use to monitor and improve their teaching practices (aided by field notes of "center professor", peer observation, and tapes of teaching).
Cultivating principled techniques, capacity to make intellectual informed and culturally sensitive decisions in mathematics and science teaching (Bagheri, Kretschmer & Sia, 1991).	• In small groups, design lesson plans and units with due regard to a rationale for objectives, the process of teaching and learning, the underlying assumptions of various teaching models, the use of puzzling situations, and the needs of culturally diverse students • Critical analysis of textbooks, curriculum resources, and professional journals	• Micro-teaching with opportunity for peer analysis and self-critique of initial applications of different teaching models	• Observation and peer coaching arranged prior to and periodically throughout the student teaching period. Use different observation stances (observer, observer/participant, participant/observer, participant). Also maintain student teaching log • Seminar instructors also act as supervisors who regularly visit classrooms, review plans and student teaching logs, and discuss intended and unintended consequences of actions • Weekly seminars with instructor-supervisors to address immediate concerns, facilitate peer support, and broaden theory–practice connections

Table 3
Reflective practices: instruction-based strategies

Focus	Pedagogy		
	Studying about skills	Observing/trying out skills	Comparing/elaborating skills
Promoting reflective pedagogical thinking (Sparks-Langer, Simmons, Pasch, Colton & Starko, 1990)	• Block of three courses taught in cohorts: Curriculum and Methods, Social Aspects of Education, Measurement and Evaluation. Integrate ideas across courses and develop field-based activities to observe and apply concepts in schools	• Observations of principles in action (e.g., active participation methods-wait time, group response) through videotaped or written accounts supplemented by micro-teaching to experiment with these strategies • Seminar for experienced teachers on "Supervising Student Teachers for Reflective Decision Making"	• One week mini-unit incorporating principles studied in the course, with assistance provided by professors and teachers at the end of the semester. Complete a nightly journal guided by questions designed to stimulate reflection about whether or not a lesson was successful, which conditions were most critical to the results, and what moral or ethical issues were inherent in the experience (towards explanatory principles of success)
Developing an analytical capacity, an essential foundation for engaging in the complex, normative and problem-solving demands of teaching (Cohn, Gellman & Tom, 1987).	• Integrated coursework: teaching-learning in secondary school, special methods (English, foreign language, social studies, mathematics, science) and reading in the content areas (also student teaching)	• In final phase, divide time between campus and schools. Conduct a three-lesson sequence for peers, one of which is videotaped and evaluated by peers and core faculty. Criteria are instructional and analytical capacity	• Six-week block divided between campus and schools, helping beginning teachers extend the skills introduced in the integrated coursework. Weekly on-site methods instruction by core faculty, referred to as "situational teaching", where concepts and strategies from campus sessions are reinforced through critiquing individual lessons and in meetings through analyzing videotaped lessons

			• During student teaching, work with cooperating teachers, peers, and core faculty (situational teaching). Attend a weekly seminar to discuss social and political forces affecting teaching
Building self-analytical and inquiry abilities in inner-city schools (Stallings, 1991).	• School-based courses in a professional development school: mathematics and reading methods, English as a second language, instructional technology for the classroom, early childhood education • Review of research on effective teaching: classroom organization, interactive instruction, and behavior management	• Observations of beginning and supervising teachers at the beginning and end of each seminar to identify how they organize classrooms, use interactive instruction, and manage student behavior. Participants learn how to analyze the observation profiles and set new goals	• Weekly triad (college supervisors, supervising teachers, beginning teachers) seminars focus on working with neighborhood children and their families, managing classrooms, planning appropriate lessons, observing and evaluating each other. Share ideas tried in class, discuss mutual concerns, and commit on paper to try something new in the following week
Encouraging, investigating, and analyzing teaching practices (Thomson, Beacham & Misulis, 1992).	• Collaboratively (university faculty and public school lead teachers) planned, delivered, and evaluated curriculum: philosophy, specialty area content, and pedagogical studies. Framed by Cruickshank model of reflective teaching	• University-sponsored seminars for clinical instructors twice a semester on current research, mentoring and supervision, and teacher development (in addition to state-supported training on mentoring, effective teaching, and the North Carolina Teacher Appraisal system)	• Extended internship. First semester spend two days a week in schools, observing and exploring different aspects of effective teaching. The student-teaching practicum allows for application of what was learned • Weekly seminars on site throughout the year where clinical instructors from the school and professors discuss the classroom experiences of the interns

(*continued overleaf*)

Table 3 (*continued*)

Focus	Pedagogy		
	Studying about skills	Observing/trying out skills	Comparing/elaborating skills
Stimulating collegial relationships and reflective thinking (Lemlech & Hertzog-Foliart, 1993).	• Critical review of teaching models in methods course for later application during student teaching	• Staff development with experienced teachers to improve curriculum and instruction, and enhance collegiality within the school and between school-based and university-based educators	• Pair beginning teachers in same classroom for student teaching. Share in planning and monitoring student behavior; provide feedback to each other on the application of models introduced in methods courses • Problems-solving clinics, with vignettes jointly created by university-based educators on problems beginning teachers would likely encounter. Receive problem a week in advance, work with partners to gather information relevant to solving the problem, interact at the clinic with an experienced teacher to propose and examine possible solutions, and go back to their classroom to try out what they decided.

Sparks-Langer et al. (1990) used a framework for reflective pedagogical thinking to frame the activities in a three-course block and a concurrent series of field experiences. The intent was to develop elementary and secondary teachers' ability "to reflect on the pedagogical principles underlying teacher decisions, the contextual factors affecting the application of the principles, and the moral, ethical, or political issues surrounding a teaching experience" (p. 1). In a secondary professional seminar, Cohn et al. (1987) interrelated general and special methods courses and developmental field experiences that encourage an analytical and reflective approach to teaching and its development. As part of the *Learning to Teach Diverse Populations* project, Stallings (1991) and her university-based and school-based colleagues coordinated a field-based semester in an inner-city elementary professional development school. Student teachers were required to set goals for changes in their teaching behaviors based on research on effective instruction with a philosophy of reflective inquiry.

Thomson et al. (1992) combined a year-long internship, integrated courses, and weekly field-based seminars (co-led by university-based and school-based teacher educators) to encourage elementary teachers to make "pedagogically and ethically correct decisions about complex classroom decisions" (p. 47). In an elementary professional practice school (PPS) during a student teaching block (Lemlech & Hertzog-Foliart, 1993), student teachers extended their collaborative decision-making capacities by working in pairs in the same classroom and participating in weekly problem-solving clinics with other pairs of student teachers, PPS teachers, and university teacher educators. Here the program innovations concentrate on how student teachers think through what they do, sometimes through processes that require familiarity with the best ways to apply validated practices and sometimes through processes that foster reasoned judgments about the situations they face in classrooms.

The development of reflective practices in the programs summarized in Tables 2 and 3 both extends and departs from the impactful behaviors orientation. In the shift from an emphasis on behaviors to an emphasis on processes, behaviors are not forsaken but instead subsumed by more robust models or frameworks for making sense of, solving problems in, or making decisions about working with students. It is not only concerned with what beginning teachers do, but also with how they think about what they do. Like the impactful behaviors orientation, student teachers receive a kind of advance organizer, usually in university-based seminars where they learn processes which they later apply in their school placements. The examples in Tables 2 and 3, however, point to numerous distinctions, the most salient of which involve what beginning teachers do in the field.

In the reflective practices orientation, beginning teachers are in the *real* world sooner, more often, and for longer periods of time. As they apply, translate, interpret and eventually personalize designated processes, they monitor their progress through various reflective devices such as writing journals or logs and compiling audio or videotaped recordings of their practices. This self-analysis is further aided by an intensification and coordination of the supervision student teachers experience while assigned to schools. University-based teacher educators more frequently conduct observations (previously handled by graduate students or clinical instructors) in

cooperation with and reinforced by supervisory teachers in the school who have been trained in the processes introduced on campus. Regular school-based forums provide a venue for student teachers and their supervising teachers and professors to debrief and to examine the processes in greater detail. Increasingly, these strategies occur within new structures (e.g., professional development schools, school–university partnerships) designed to facilitate this more intense, coordinated and probing pedagogical work.

When viewed through the lens of the pedagogical framework, the reflective practices orientation has a tighter coupling between studying about skills and comparing and elaborating skills in classrooms. What happens during the study of skills in university-based seminars needs to be taken directly to the schools for immediate and extended application. There are relatively fewer stops to try out new processes in simulated settings (e.g., through microteaching under laboratory-like conditions) or even to engage in systematic observations of these processes in use (second part of the framework). The priority is to socially locate student teachers' learning in field-based working relationships (with other student teachers, supervising teachers, and university-based teacher educators) that promote tasks consistent with how teaching processes have been introduced earlier in campus-based courses. This alignment is made possible by the closer ties between universities and schools and the use of fewer (professional development) schools with whom to create these links. A third orientation, albeit one that is still in the making, sees transfer as only one aspect of a much wider and career-long pursuit of professional knowledge.

4. Development of professional knowledge

To some extent, it is premature to discuss the possibilities of an orientation centered on the development of professional knowledge. This so-called third orientation may simply be the next stage of the reflective practices orientation, synthesizing and extending what we currently declare beginning teachers should know and be able to do. Furthermore, while many argue the importance of professional knowledge in the initial and ongoing development of teachers (Borko & Putnam, 1996; Calderhead, 1996; Carter, 1990; Eraut, 1994, 1997; Feiman-Nernser & Remillard, 1996; Mumby, Russell & Martin, 2000), there is both a lack of consensus over what constitutes professional knowledge and a dearth of studies or accounts of how to support its development, especially with beginning teachers. Consequently, the following outline is a personal attempt to define the parameters of this fledgling orientation and to elaborate a plausible pedagogical strategy for its implementation.

At the heart of this orientation is the image of teaching as knowledge work. Such work when located in or done on behalf of their classrooms involves the interrelated use of practical knowledge (routines, procedures, processes) and propositional knowledge (discipline-based theories and concepts, pedagogical principles, situation-specific propositions).[3] Teachers continuously engage, construct, or reconstruct their

[3] For a more thorough discussion of the contexts and types of professional knowledge and their interrelated use, see Eraut (1997).

professional knowledge both in their spontaneous and often unpredictable interactions with students, and in their reflections and deliberations prior to or following the events of classroom life. The challenge facing beginning teachers is to develop their capacity to concurrently use their practical and propositional knowledge in an integrated and purposeful manner. In order to achieve this concurrent knowledge they need to develop the requisite *skills* in their initial teacher preparation program.

The emphasis on concurrent use of knowledge distinguishes this orientation from the impactful behaviors and reflective practices orientations in at least four ways. First, teaching is not only about the application or translation of preferred skills and processes. These skills and processes are aspects of practical knowledge which have to be combined with relevant forms of propositional knowledge (e.g., theories about how children develop) for *purposeful action* in classrooms. Second, the concurrent use of knowledge requires a more interactive and mediating stance where different types of knowledge mutually inform what teachers do. Various concepts or frameworks (propositional knowledge) are used to guide planning, to provide an alternative exploration for why certain classroom experiences occur, or to evaluate the success of a particular approach (practical knowledge). Similarly, many trial and error cycles, confrontations with different instances of the same problem, or continuous adjustments of preferred strategies in specific situations (practical knowledge) can generate, modify or reshape the structure and content of related theories (propositional knowledge).

The third and fourth distinctions have more direct pedagogical implications for initial teacher preparation programs. Typically, one type of knowledge development has received the greater emphasis in each learning context, propositional knowledge in universities and practical knowledge in schools. For knowledge first encountered and developed in one context to be used in another context, further adaptation and even transformation need to occur. It is crucial for the less prominent knowledge in the context of learning (practical knowledge in university settings, propositional knowledge in school settings) to receive sufficient attention to ensure that beginning teachers have multiple opportunities to integrate knowledge in both contexts. And fourth, initial teacher preparation programs have to devise and design pedagogical moments that compel a concurrent use of knowledge in and for classroom practice (e.g., around persistent problems, dilemmas, or discrepant events).

While some of the pedagogical strategies in the previous two orientations are relevant to the development of professional knowledge (especially from the development of reflective practices), there are few studies in this orientation from which to generate a comprehensive pedagogical scheme for initial teacher preparation programs. The following proposal builds on the above four distinctions associated with the concurrent use of knowledge to create a more connected pedagogical framework within and across both university and school environments. It is a matter of not only engaging all three pedagogical phases (the impactful behaviors orientation does not give sufficient attention to comparing and elaborating skills in classrooms and the reflective practice orientation does not devote enough time to observing and trying out skills under simulated conditions). It is also about student teachers experiencing the concurrent use of knowledge in each pedagogical phase and context — on campus

through strategies which focus on *practically relevant propositional knowledge* and in schools through strategies which focus on purposeful, defensible practice (i.e. *propositionally interpreted practical knowledge).* In this orientation, the concurrent use of different forms of knowledge about teaching remains central to learning in each setting.

At the university, beginning teachers can develop practically relevant propositional knowledge through: (1) studying about skills, (2) observing and trying out skills under simulated conditions, and (3) comparing and elaborating skills *for* classrooms. Howey (1996) outlines several strategies in pedagogical laboratories designed to help student teachers critically explore the practical relevance of propositional knowledge.

> A video library with multiple carrels for both individual and small group viewing and with a giant screen for large groups could serve multiple purposes. Prospective teachers could observe children on videotape beginning with preschool children and proceeding through the teens to examine their developmental tendencies. Case studies of these children could, in fact, be undertaken by preservice student cohorts; this would contribute over time to a growing video bank. "Critical instances" of teaching and learning could be examined through various forms of secondary analyses using a number of sign and category systems rooted in social psychology, psycholinguistics, political science, or cultural anthropology .... Microteaching facilities should exist where an entire section of 30–35 preservice students can regularly break into five or six peer groups for experimentation and practice employing video replay. Constructivist principles focusing on the monitoring and metacognitive responsibilities of the learners in the group, as well as the teacher, can be fostered in such activities .... Preservice teachers should have multiple opportunities to observe professors and experienced teachers as they analyze and provide warrants for their teaching, again employing video. Designated classrooms could have multiple, remote-controlled cameras for later replay and analysis. At other times, one-way mirrors would provide perspectives not easily captured on camera. Eventually preservice students should be the focus in controlled teaching clinics (p. 167).

Propositional knowledge can serve at least four functions in a developmental sequence of laboratory and clinical activities. The first is to guide what student teachers learn. The second is to offer a lens through which to analyze reproduced or reconstructed accounts of practice. The third is to act as benchmarks for assessing the application of certain approaches in controlled (time, pace, place, form) situations. The fourth is to provide departure points for the development of more personalized theories about teaching. In terms of concurrent use, propositional and practical knowledge intersect, initially in a manner where practical knowledge is derived from propositional knowledge, but over time amidst the kind of intellectual discourse suggested above by Howey (and through comparisons with field-based knowledge development, see below), student teachers can draw on their growing practical knowledge to reference and, where justified, adapt their propositional knowledge. This knowledge interchange can take a different turn when it moves from the

contrived and contemplative problems of the laboratory to the spontaneous and polysynchronous problems of the classroom.

In schools, pre-service teachers can develop propositionally interpreted practical knowledge through: (1) observing and trying out skills under actual classroom conditions, (2) comparing and elaborating skills in classrooms, and (3) *deliberating* about skills. Many of the school-based pedagogical strategies outlined for the reflective practice orientation (e.g., observation guides, structured assignments, school-based seminars) are also relevant here. They are recast, however, to concentrate on the many dimensions of practical knowledge (not only processes) and to do more than simply apply the principles and theories learned back on campus.

Knowing how to teach comes from within the act of teaching. As student teachers work in classrooms, their practical knowledge can build through both naturally occurring events and deliberate moves to stimulate further insight and skill in what they do. In the changing circumstances of classroom life, student teachers experience routine and disruption, familiar and unique situations, and predictable and unpredictable incidents. These swings often expose the taken-for-granted assumptions student teachers bring to the job. As they learn to cope with this naturally unfolding world, they can make their implicit ideas explicit and, where necessary, alter them to correspond to their revised practices. Whether motivated by a field-based assignment or a desire for self-improvement, student teachers can also confront persistent problems in the classroom by testing out alternative approaches or probing further into conditions which directly or indirectly affect their actions. Through sustained time in classrooms, student teachers can have many opportunities to generate and refine their own practical knowledge in a way that remains mindful of its relationship to their evolving propositional knowledge.

Though the development of practical knowledge dominates learning to teach in schools, propositional knowledge can come into play both within and outside of classroom action. While learning from within the action, propositional knowledge is more in the background, often in the crevices of student teachers' implicit theories. When involved in observing and trying out skills under more managed classroom conditions (e.g., working with small groups or for a segment of a lesson only), propositional knowledge can interact with practical knowledge in ways that are similar to its functions on campus (as a guide to learning, a lens for analysis, a benchmark in assessment, or a point from which to personalize practice). Schools can also create deliberative moments (the school-based version of studying about skills) where in weekly seminars, workshops or problem-solving clinics (see Tables 2 and 3), beginning teachers, cooperating teachers and university-based teacher educators can pause to discuss the dynamic complexity of classrooms. Here propositional knowledge co-exists with practical knowledge with student teachers alternatively using one as the foil for the other, each as a particular vantage point from which to view and make sense of the events of the day, or both to mutually inform their subsequent teaching decisions. In schools, there can be varied and numerous occasions which compel quite different connections for teachers to address in their development of professional knowledge.

The concurrent use of practical and propositional knowledge can be still further extended through pedagogical strategies that integrate learning to teach across both contexts. Maintaining a portfolio of their professional learning on campus and in schools can give student teachers a vehicle for creating intercontextual profiles of how their knowledge has evolved. Where initial teacher preparation programs are organized by themes (e.g., constructivism; see Richardson, 1997; Arends & Winitsky, 1996), then both contexts can involve beginning teachers in strategies which build on the cohering force that guides each pedagogical phase. Neither robust strategies (e.g., portfolio development) nor unifying themes can fully bring the two realms of knowledge development together without the collaborative efforts of all *three* teacher educators: the student teachers (self-directed professional learners), the school-based teacher educators (cooperating or supervising teachers), and the university-based teacher educators (professors). Each teacher educator often has his/her own configuration of how best to interrelate knowledge. Whether in a laboratory setting on campus (McIntyre, Byrd & Fox, 1996) or as part of a professional development school (Levine & Trachtman, 1997; Valli, Cooper, & Frances, 1997), student teachers need to interact with others (peers, experienced teachers, professors) who themselves are concurrently using knowledge to improve their practice.

The above proposal for the development of professional knowledge orientation recaptures the interrelated structure of the pedagogical framework. All three pedagogical phases are essential to both university-based and school-based strategies albeit in a form and a configuration that are sensitive to the contextual circumstances of each setting. With the pedagogical intent on developing professional knowledge, and an image of professional knowledge which involves the concurrent use of practical and propositional knowledge, the framework concentrates on strategies which compel student teachers to explore how best to integrate different kinds of knowledge in their classroom work.

5. A knowledgeable start to a teaching career

To a large extent, the three orientations represent progressively more advanced and comprehensive responses to three questions:

1. What constitutes a skillful start to a teaching career?;
2. How does the skillfulness of student teachers evolve?; and
3. How can an initial teacher preparation program support the development of this skillfulness?

Each orientation tends to subsume the priorities of the previous orientation(s) to produce a more inclusive and extensive answer to these three questions. In determining what constitutes a skillful start to a teaching career, the focus on the systematic use of discrete and specific practices (impactful behaviors) shifts to the strategic and considered application of complex teaching processes (reflective practices) and then to the concurrent use of various forms of knowledge in an integrated purposeful manner (professional knowledge). In the latter orientation, skillfulness still involves learning

particular behaviors and processes but these are now construed in terms of the emerging knowledge student teachers are developing about their professional practices.

Similarly, the story of how skillfulness evolves over time changes from one of sequential and cumulative skill development (impactful behaviors) to one of situated repertoire building (reflective practices) to one of negotiated insights about teaching (professional knowledge). In the professional knowledge orientation, episodes in which beginning teachers apply particular habits, behaviors, or processes are segments of an ongoing effort to socially construct more trustworthy and meaningful understandings about their classroom practices.

Across the three orientations, the pedagogical strategies used to support the development of skillfulness in student teachers have become more intensive, balanced, and connected. While the impactful behaviors orientation stresses the first two phases of the pedagogical framework (*studying about skills and observing and trying out skills under simulated or actual classroom conditions*) and the reflective practices orientation emphasizes the first and third phases (*studying about skills* and *comparing and elaborating skills in classrooms*), the professional knowledge orientation strives to incorporate and elaborate all three phases. This requires comparable attention to each phase, more deliberate links between phases, and changes in the form of pedagogical strategies.

Within the three phases, the pedagogical strategies are increasingly collaborative, integrative, and inquiry oriented. From their more enabling role in making it possible for student teachers to try out practices introduced on campus (impactful behaviors) and their more cooperative stance in working with university-based teacher educators to reinforce and extend the processes recommended in the program (reflective practices), cooperating teachers in the professional knowledge orientation can now have a greater stake in and influence on what and how beginning teachers learn. This collaborative turn is also evident in the greater incidence of joint work by beginning teachers and is structurally enhanced through formal school–university partnerships, the most promising of which is the creation of professional development schools. Coinciding with these social transitions is the growing attention to program coherence. From a position where learning from the links between campus and school activities are more the responsibility of student teachers to make than the responsibility of the program to foster (impactful behaviors) and a situation where school experiences are structured so that they are consonant and coordinated with the perspectives and practices encouraged by two or more courses on campus (reflective practices), program components in the professional knowledge orientation can have more fluid, reciprocal, and embedded links through integrating themes, issues, or images.

In addition to connections among people (collaboration) and across structures or activities (integration), connections between ideas and practices have been further developed through the expanded use of inquiry-oriented pedagogical strategies. From the structured feedback expert observers provide to student teachers about their proficiency with certain instructional skills (impactful behaviors) and the periodic evaluation of varied trials of particular teaching models or the critique of alternative

responses to classroom problems (reflective practices), inquiry in the professional knowledge orientation can become a more pervasive and ongoing search for understanding and improvement. Together collaborative, integrative, and inquiry-oriented strategies provide the force that both binds and engages the three-phase pedagogical framework.

The above progressive account suggests that the professional knowledge orientation may indeed hold the greatest pedagogical promise for appreciating and supporting a skillful start to a teaching career. To make good on this promise however, requires redirection more than successive improvements on previous orientations. The professional knowledge orientation is more than an extension of or an improvement on previous orientations. It works from assumptions which ultimately point in a different direction. Unlike the impactful behaviors and reflective practices orientation, the professional knowledge orientation recognizes the importance of both practical and propositional knowledge, and by implication, the value of insights (traditionally the primary source of practical knowledge) both teachers and professors (traditionally the primary source of propositional knowledge) bring to initial teacher preparation programs.

Furthermore, the development of professional knowledge comes from the multiple and varied interactions of practical and propositional knowledge and not simply from the application of theoretically formulated and empirically validated constructs (e.g. skills in the impactful behaviors orientation and processes in the reflective practices orientation). Inevitably knowledge of one type (practical or propositional) or knowledge first generated in a particular context (on campus or in schools) needs both combination with relevant notions from the other type of knowledge and repeated use and likely adaptation in the other context before any growth in teaching can occur. It can be argued that this emerging emphasis on professional knowledge is much more than the latest interpretation of skillfulness. It is a departure from the past and the beginning of a new direction, one that augurs an era where student teachers can now seek a knowledgeable start to their careers.

A knowledgeable start to a career demands an initial teacher preparation program that consistently compels the concurrent use of knowledge. This is more likely to occur within a pedagogical framework where strategies:

- integrate all three phases in each context (on campus and in schools) and reciprocally across contexts;
- focus on core and persistent problems, incidents, or phenomena of classroom practice;
- involve each of the main protagonists (student teachers, cooperating or supervising teachers, university-based teacher educators) in the collaborative, inquiry-oriented, and integrating activities around these problems, incidents or phenomena in both settings; and
- provide structural support for the previous three requirements (e.g., laboratory and clinical facilities on campus; school-university partnerships — such as professional development schools; unifying images of teaching, teacher development, and program coherency).

In such a pedagogical reform, teacher educators find themselves with a challenge similar to their students (beginning teachers), namely, how to concurrently use several kinds of knowledge to accomplish the pedagogical innovations above. Teaching student teachers is also knowledge work.

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