

INDICATORS OF SUCCESS IN TEACHER EDUCATION

A Review and Analysis of Recent Research

Tom Russell

Faculty of Education
Queen's University
and

Suzin McPherson

Limestone District School Board
Kingston, Ontario

April 24, 2001

prepared for the

**2001 Pan-Canadian Education Research Agenda Symposium
Teacher Education/Educator Training: Current Trends and Future Directions**

May 22-23, 2001
Laval University, Quebec City

Abstract

Indicators of success in teacher education are reviewed in four major sections, beginning with the quality of teacher education programs. Subsequent sections consider external and internal factors influencing teacher educators, the relationship of qualifications and professional development to student achievement, and the impact of out-of-field teaching.

Collaboration and cooperation between schools and universities are major elements in successful programs that have brought real change to teacher education. The most promising criteria for judging the quality of preparation are the perceptions of those learning to teach. Coherence across instructional elements of programs and between instruction and personal classroom experiences is the most obvious indicator of quality.

INDICATORS OF SUCCESS IN TEACHER EDUCATION

Introduction

Our inability to establish clear indicators of the success of teacher education programs is rooted in the normal school and teachers' college foundations of these programs. Although most preservice programs now reside in university settings with expectations for research as well as teaching, the move into universities has reinforced an epistemology of technical rationality that largely ignores learning from experience (Schön, 1983, 1995). Similarly, the accumulation of a massive "knowledge base for teaching" has been a major research achievement that falls short of its goal when such knowledge is taught to would-be teachers as content rather than constructed from their practicum experiences. Generating standards of practice and introducing teacher testing are viewed here as moves to impose external requirements on programs that must first be transformed from within. The discussion of indicators of success is organized in four major sections, beginning with the quality of teacher education programs. Subsequent sections consider external and internal factors influencing teacher educators, the relationship of qualifications and professional development to student achievement, and the impact of out-of-field teaching on student learning.

Indicators of the Quality of Teacher Preparation Programs

Despite decades of reform movements, teacher education programs continue to be criticized for ignoring the voices and needs of teacher candidates, providing and promoting an unrealistic view of teaching, and perpetuating the transmission model of teaching as telling (Cochran-Smith, 2001; Kagan, 1992; Korthagen, 2001; Olson & Osborne, 1991; National Academy of Education, 1999; Russell, 2001; Smith & Shapson, 1999; Vann, 1999). Although courses have been described as "vapid, impractical, segmented, and directionless" (Tom, 1997, p. 13), traditional programs do produce graduate teachers who report feeling prepared for their first year of teaching (Corcoran, 1981; Kagan, 1992; McPherson, 2000; Olson & Osborne, 1991; Snow, 1988; Xiaobin, 1999). The illusion of adequate preparation to teach is often shattered when personal experiences of daily teaching reveal the inevitable inadequacies of preservice preparation. "I almost quit my job on Tuesday [the first day of school]! I will remember that day for the rest of my life. It was so horrible that I almost threw up in class. I felt so overwhelmed, no one knew I was there." (McPherson, 2000, p. 67; see also Etheridge, 1989; Goodman, 1987; Kane, 1990; Weinstein, 1988) This unfortunate initiation into the teaching profession is one that is familiar to many new teachers, creating a survival phase that is accepted in staffroom folklore as "the way we learn to teach" (Calderhead, 1989, p. 49; see also Carré, 1993; Kane, 1991; Kilgore, Ross & Zbikowski, 1990; Le Maistre, 2000; McPherson, 2000; Olson & Osborne, 1991; Ryan, 1970; Snow, 1988).

As initial idealism and unchallenged images of self-as-teacher meet the daily demands of students, curriculum, and the social culture of the school, beginners report an inability to cope with many of the essential elements of the job, including time management, classroom management, evaluation, long-range planning, and developing parent-teacher and peer relationships. Being overwhelmed by the requirements of a profession that one felt prepared to enter can generate self-doubt, frustration, and anxiety as novice teachers scramble to understand the fundamental requirements of the role of “teacher” (Berliner, 1994; Carré, 1993; Ethell & McMeniman, 2000; Etheridge, 1989; Goodman, 1987; Hatton, Watson, Squires, & Soliman, 1991; Housego, 1994; Kagan, 1992; Kane, 1991; McPherson, 2000; Olson & Osborne, 1991; Ryan, 1970; Smith & Shapson, 1999; Snow, 1988). “I slowly began to acknowledge that I was qualified only on paper. In spite of the training I had received, I was only at the beginning of a long process of developing skills as a teacher” (LeMaistre, 2000, p. 85).

Successful transition from preparation to full-time teaching is even more unlikely when first-year teachers are placed in settings outside their limited practicum experiences and areas of subject matter knowledge. Many beginners are given the assignments that veteran teachers do not want, in difficult schools, with difficult classes, or simply to fill holes in a school’s timetable (Berliner, 1987; Etheridge, 1989; Goodman, 1987; Hardy, 1999; Hatton, et al., 1991; Kane, 1991; McPherson, 2000; Montgomery Halford, 1998; Wiener, 1999).

Quality in Teacher Preparation

The frustrations of being forced to spend the first months of one’s professional life living and teaching in survival mode can cause beginners to quickly dismiss their university courses as “irrelevant, superficial, and even useless” (Olson & Osborne, 1991, p. 341). This gap between preparation and practice helps to perpetuate the belief that the real business of learning to teach occurs with one’s own students, far away from the university’s apparently impractical and theoretical approach to the realities of the classroom (Kane, 1991; Le Maistre, 2000; McPherson, 2000; Ryan, 1970; Smith and Shapson, 1999; Snow, 1988; Tom, 1997). This view of learning to teach can lead many teachers to “believe that they acquired their most important insights on the job and that they could provide an apprenticeship situation which would be more valuable to novice teachers than the instruction provided by professors” (Tom, 1999, p. 59). When teachers later take student teachers into their classrooms, this perception of professional learning affects teacher candidates in two ways:

1. It can perpetuate the divide between theory and practice, between field and faculty.
2. It can generate an unrealistic sense of preparedness among beginners who successfully imitate the observable actions of a more experienced teacher without developing a deeper, personal understanding of what it means to teach.

Even an extended practicum within a traditional program structure, working in schools and with students for months at a time, is not necessarily seen as adequate preparation. “Exposure does not constitute experience, either in the faculty or in the field” (McPherson, 2000, p. 91; see also Berliner, 1987; Calderhead, 1989; Ethell & McMeniman, 2000).

Quality and Calls for Reform

In an effort to address the question of quality and content in traditional teacher education programs, reform movements in recent decades have focused on discovering the attributes and strategies of effective teachers and on defining a knowledge base for teaching (Cochran-Smith, 2001). Yet no significant effects have been evident either in the quality of teacher preparation (as reported by preservice and inservice teachers) or in substantial movement away from traditional program structures (Grimmett, 1998; Lewington, 1998; McPherson, 2000; Olson & Osborne, 1991; Smith & Shapson, 1999; Tom, 1997; Wiener, 1999). Even in the present “outcomes” climate (Cochran-Smith, 2001, p. 1), reform and research do not consistently address the underlying assumptions of teacher education and professional development.

For the most part we have treated the intersection of research and practice as one in which researchers transmit the products of research to practitioners. This situation is ironic, for we know that the transmission model does not work for the education of children. Why, then, do we think that it should work for the education of practitioners? (National Academy of Education, 1999, p. 31). The simple model of learning that has dominated both the design of teacher education and the conduct of research on teacher change is that knowledge goes in during teacher education and professional development and comes out to be used in classrooms (National Academy of Education, 1999, p. 77).

Teacher education programs do little to dismantle the common view that a full-blown “teacher” emerges from a preservice program, rather than a novice or intern ready to begin teaching. This view is often held by candidates and employers alike, reflecting a fundamental failure to acknowledge the effects of experience and further professional development on professional growth (Berliner, 1994; Calderhead, 1989; Carr, 1993; Corcoran, 1981; Ethell & McMeniman, 2000; Hatton & Smith, 1995; Kagan, 1992; Kane, 1993; Korthagen, 2001; LeMaistre, 2000; Olson & Osborne, 1991; Schempp, Tan, Manross, & Fincher, 1998; Weinstein, 1988).

The persistence of traditional models of teacher education programs, with non-collaborative environments and limited communication and coordination, reinforces and perpetuates the separation of theory from practice, faculty professors from field practitioners, and faculty members from each other (Darling-Hammond, 1996; Kagan, 1990, 1992; King & Newmann, 2000; McPherson, 2000; Montgomery-Halford, 1998; Olson & Osborne, 1991; Smith & Shapson, 1999; Tell, 1999; Vavrus, in press; Weiss, 1999; Wiener, 1999). Tinkering with existing programs without examining the foundations upon which programs are built produces little significant change in the quality of programs (Bruneau, 1997; Goodlad, 1991; Korthagen, 2001; Smith & Shapson, 1999; Tom, 1997; Weiner, 1999).

Successful Preparation Programs Display Models of Collaboration

The handful of teacher educators who have been able to move away from the traditional transmission model of instruction and program structure (a model that physically and pedagogically separates learning “what” from learning “how”) have transformed the face of teacher education (Cochran-Smith, 1991; Darling-Hammond, 1996; Ethel & McMeniman, 2000; Korthagen, 2001; Moore & Looper, 1997; Wilmore, 1996; see also Vavrus, in press, and

Cochran-Smith, 2001, for reviews of exceptional programs). Innovative programs often begin with the understanding that entering teacher education is not the equivalent of switching on the ability to think like a teacher. Candidates must first comprehend and question the learning to teach process from within their own limited and personal perspectives created by years of observing teachers. While the details of innovative programs differ, structural similarities include:

- (a) making explicit what teachers actually do and think in the course of planning, implementing, and evaluating their teaching,
- (b) taking candidates' experiences and concerns as central in discussions that enable them to study their own fledgling practice as they work to see the theory involved in practical decisions,
- (c) creating collaborative environments, within student cohorts, between school boards and faculties, within university departments, and among teacher educators, trained mentors, and candidates.

Collaboration permeates and directs the structure of these new programs. The initial success of a field-based project in Texas provides a clear illustration. Teacher educators work within a school for the entire school year as members of a team that includes the school's principal, a trained mentor teacher, and a cohort of teacher candidates. The team works to integrate learning and teaching to "directly tie theory to practice" (Wilmore, 1996, p. 59). Candidates are taught the strategies and reasons behind a given lesson and then watch their instructor execute a lesson that is followed by debriefing and the opportunity to put similar strategies into practice with support and feedback. The opportunity to receive year-long practice and corrective counseling in different classroom settings has enabled these beginners "to avoid many of the obstacles encountered by graduates of traditional programs" (Wilmore, 1996, p. 62). Such a successful project has been expanded to become the only format for teacher education at the University of Texas in Arlington, as well as the model for an equally successful principal preparation program. Not all restructured programs take collaboration to this level, but the successful ones do address the structural issues mentioned above and receive the support and praise of principals and graduates. Graduates appear to demonstrate strong skills in areas that traditional graduates stumble over and seem able to articulate how theory informs practice (Cochran-Smith, 1991; Darling-Hammond, 1996; Ethel & McMeniman, 2000; Korthagen, 2001; Moore & Looper, 1997; Wilmore, 1996).

A final similarity across innovative approaches to teacher education involves faculty members listening to and valuing teacher candidates' histories and experiences to understand and assist in the transition from student to student teacher to first-year teacher. This involves a major shift in perspective so that candidates may connect to their preparation program in a meaningful and personal manner. These educators do not impose an external finished product in assembly-line fashion; instead, they enter into an interactive process that facilitates personal professional understanding and growth (Calderhead, 1989; Ethell & McMeniman, 2000; Grimmet, 1998; Kagan, 1992; Korthagen, 2001; Montgomery-Halford, 1998; Moore & Looper, 1997; Smith & Shapson, 1999).

External and Internal Factors Influencing Teacher Educators

The success of a small number of restructured approaches to teacher education highlights the tenacity of the traditional model. The following quotations are indicative of the general state of teacher education.

- The snail's pace of change in teacher education is due in part to the numerous stakeholders involved in the formal—and informal—governance of teacher education. . . In many ways everybody is in charge of teacher education, yet nobody is. (Tom, 1997, p. 7)
- Teacher preparation currently appears to be more in a state of turmoil—indeed, in some countries under attack—than in a state of continuous improvement. (Grimmett, 1998, p. 254)
- How can teacher education prepare teachers for the inherent clash between professional autonomy and centralized curricula serving a global economy? (Ben-Peretz, 2001, p. 51)
- New understandings about how children learn, combined with clear knowledge of how effective organizations function, suggest ways faculties of education might reorient to help new teachers become truly responsive to the challenges of teaching and learning in the coming age. (Smith & Shapson, 1999, p. 4)

Statements such as these point to an overwhelming tension between the incessant calls for reform, on the one hand, and a feeling that the task has too many heads and too many masters to begin to serve them all, on the other. We can better understand this tension if we consider external and internal factors that contribute to the perpetuation of traditional programs. At the outset, we note that the criticisms leveled at traditional preparation programs refer to both an ineffective product (what is learned) and an ineffective process (how it is learned). These criticisms of ineffectiveness are described in sections on structural divisions, lack of consensus, and external assessments.

Structural Divisions between Theory and Practice

Teacher educators may be loath to endorse feedback from program graduates to guide their work. They claim they know what teachers need . . . both preservice and inservice teachers press for practicality. Yet teacher educators advance research-based rigour as the fundamental basis of initial teacher education. (Housego, 1994, p. 371)

This statement points to an implicit structural fault line that separates teachers and teacher educators within the traditional model of teacher preparation, leading to a systemic lack of collaboration. Perhaps the most enduring and detrimental consequence of the accompanying systemic separation of practice from theory is the attitude developed towards educational theory. Beginners' perceptions of the role of formal theory in their daily teaching range from "if only I had time to think about it" to "the theory learned in training is impossible to put into practice"

(Carré, 1993, p. 201). A first-year teacher explained, “As a student teacher you don't even know how to see the information that's going up on the overhead” (McPherson, 2000, p. 89). Beginners do, however, acknowledge the importance of small-t theory, often to address an issue or situation for which their university coursework has left them unprepared. This distinction parallels Korthagen’s explanation that small-t theory “should help the teachers to perceive the characteristics of a situation that are important to the question of how to *act* in the situation. This is a major difference with Theory with a capital T, formal academic theory, which aims at *understanding* a situation” (Korthagen, 2001, April, p. 8; see also Grimmer, 1998). While Korthagen’s candidates are encouraged and guided in using theory as a conceptual stepping stone to understanding and incorporating Theory into their practice, most beginners are not able to bridge the gap between the two as they remain stuck in an either/or, practical/impractical mind set. An early inability to understand and integrate Theory into practice sets the foundation for the enduring impression fostered by traditional programs that “real” teaching is not informed by the university’s theoretical coursework and “real” teachers live, work, and learn in classrooms, not in faculties of education (Smith & Shapson, 1999).

Lack of Consensus within Programs

Members of a faculty of education rarely agree on fundamental premises of preservice teacher education, and this lack of consensus can create fragmentation, bitterness, in-fighting, and an absence of course coordination that leads to repetition of material (Kagan, 1990; McPherson, 2000; Smith & Shapson, 1999; Tom, 1997). Often, “student-teachers perceive much of their programming as fragmented, inconsistent, and lacking in coherence” (Smith & Shapson, 1999). As a result, faculties of education do not “reflect the most healthy social organizations for teachers” (Kagan, 1990, p.50). Instead, beginners may be offered the “stay out of the staffroom” approach to collegial relations, an attitude that makes apparent the “stuck” status of most traditional faculties of education. Without a common, shared focus and purpose, “stuck” schools and faculties work in climates of low-consensus among staff members. “Perhaps the most serious result of a lack of consensus and common culture is the incoherent, segmented nature of most preservice teacher education programs, which suffer from the absence of a common set of purposes and a common body of knowledge” (Kagan, 1990, p. 49). In such situations, feelings of isolation, defensiveness, and total self-reliance are virtually inevitable (Kagan, 1990).

Watching out for one’s own best interests does not create the internal cohesion needed to create and sustain effective reform practices. Beyond requiring a unified perspective and purpose, successful restructured programs:

- (a) are set in a “framework of theoretically sound and research-supported conceptions of teaching and learning” (Kagan, 1990, p. 49)
- (b) address the specific contextual concerns of staff members (Grimmett, 1998; Hatton et al., 1991; Kagan, 1990; Vavrus, in press)
- (c) take into account the “natural emotional reactions of human beings to the threat of losing certainty, predictability or stability” (Korthagen, 2001, April, p. 4; see also Darling-Hammond, 1996; Fullan, 1998; Kagan, 1990).

The Impact of External Assessments

A final external factor that may affect program structure, content, quality, and staff morale is the proliferation of standardized testing of graduates and veteran teachers in the quest for accountability. “In theory, accountability sounds wonderful. In practice, it raises a host of thorny issues, not the least of which is philosophical. What does accountability mean?” (Earl, 1999, p. 5). For many, “large-scale assessment has become the vehicle of choice for accountability . . . and testing has changed from an instrument for decision-making about students to a lever for holding schools accountable. Similarly high-stakes testing demonstrates the government or testing institutions understanding of teachers and their professional preparation and growth.” (Earl, 1999, p. 4; see also Cochran-Smith, 2001) The implication is that external forms of monitoring the profession are required, and that paper-and-pencil tests provide a necessary and sufficient indication of quality teacher preparation and performance. Furthermore, tying high-stakes assessments to penalties (including loss of accreditation) and perks (monetary) gives policy makers the power to say, “If you don’t care about these tests because you would rather pursue other kinds of learning, then we will force you to care” (Kohn, 2000, p. 320).

The argument against this form of assessment is not one of accountability but one of suitability. “As a rule, those who object most forcefully tend not to be mediocre teachers who are afraid of being held accountable but gifted and dedicated classroom practitioners who understand the threat that (standardized) tests pose to learning.” (Kohn, 2000, p. 31) Furthermore, large-scale tests do not or cannot assess critical and creative thinking skills and those who achieve high scores are often superficial thinkers (Earl, 1999; Kohn, 2000; Melnick & Pullin, 2000; Schofield, 1999). “To make a fetish of specific, measurable goals, is not only simplistic insofar as it fails to capture what is actually going on; it is destructive insofar as it changes what is going on for the worse” (Kohn, 2000, p. 316; see also Runte, 1998). Shulman described the situation in an interview:

The confusion stems from valuing standards, on the one hand, and embodying those standards in high-stakes assessments, on the other. I’d like to see us disentangle these priorities. I’d like us to develop high standards that describe in compelling, vivid, and persuasive terms what we would like both our teachers and our students to know, to be able to do, to understand, and to enact—without then tying accountability for achieving those standards to high-stakes assessments. The assessments end up corrupting the value of the standards. (Tell, 2001, pp. 6-8)

Despite arguments against the use and usefulness of large-scale, high-stakes testing, this form of assessment is growing in popularity with governments as a “form of quality assurance” (Schofield, 1999, p. 64). The punishments and perks tied to test results create pressures for teachers and teacher educators to ensure that teacher candidates perform well on exams. These assessments will continue to influence the direction of program reform and program content at all levels of education. How they will generate benefits is far from clear.

The Relationship of Qualifications and Professional Development to Student Achievement

While high-stakes standardized certification exams may be able to assess a teacher's knowledge of a subject, the "how" of teaching is certainly not easily measured. The link between experience and professional development suggests that no matter how well prepared a beginner is, he or she is still a beginning teacher. This runs contrary to traditional thinking that assumes that preservice education prepares one to teach before actually entering the profession (Olson & Osborne, 1991). In reality, Berliner (2000, 1994, 1987) and others (Calderhead, 1989; Hatton & Smith, 1995; Schempp, Tan, Manross, & Fincher, 1998) have clearly reported that the majority of teachers do not feel or demonstrate professional competence until three to five years into their careers.

Setting the Stage for Career-Long Professional Development

If this developmental view of learning to teach is accepted, then the traditional drop-and-run transition model from preservice program to first classroom must be re-evaluated and replaced by deliberate induction practices focusing on how experience informs practice. Just as restructured preservice programs attend to a candidate's assumptions and understandings within a collaborative setting, so successful induction programs set expectations and assign teaching responsibilities collaboratively in accordance with a novice's level of experience and pedagogical knowledge. Despite differences across induction programs, and in the absence of any formal induction process, the literature overwhelmingly supports the pairing of beginners with mentor teachers. Teachers who are mentored report a smoother entrance into the profession. Moving quickly beyond survival mode, they are able to integrate reflective practice into their teaching, they report higher morale and a stronger commitment to teaching, they exhibit lower stress levels, they are less likely to revert to default teaching practices in future years, and they are less likely to leave the profession after the first year. Beginners also report more positive first-year experiences if they work with a collaborative, supportive, and responsive staff (Carré, 1993; Darling-Hammond, 1996; Etheridge, 1989; Goodman, 1987; Grimm, 1998; Hatton et al., 1991; Jambor, Patterson, & Jones, 1997; Kagan, 1992; Kilgore, Ross, & Zbikowski, 1990; LeMaistre, 2000; Montgomery-Halford, 1998; Moore & Looper, 1997; Olson & Osborne, 1991; Stedman & Stroot, 1998; Tell, 1999; Wasley, 1999; Weiss, 1999; Wiener, 1999; Wilmore, 1996). In the most successful situations, mentors are trained and compensated for their time, with the cost often being recovered in subsequent years in a lower teacher drop-out rate and reduced recruitment costs (Jambor, Patterson, & Jones, 1997; Montgomery-Halford, 1998; Wilmore, 1996). While the presence of mentors and a high-consensus workplace can positively affect the novice's initial encounters with classroom life, full-scale induction programs move beyond the concept of surviving to thriving in the first years.

Evidence of Successful Induction Programs

Grimm (1998, p. 262) describes one successful internship program in these words:

Teachers spend their first year of teaching as an intern (a position with reduced pay and workload that is analogous to architects' and lawyers' articling or medical practitioners' residency) and are required to conduct research into the dilemmas of practice they encounter on entering full time the social and political context of schools.

During induction, contact with the faculty of education maintains a link between beginning teachers and their professional program. Jambor, Patterson, and Jones (1997) report similar success with a program in which new teachers are given a reduced salary (but full benefits) and treated as interns learning on the job. The reserved monies fund mentor programs, master's level education, collaborative opportunities among university, school district and business community, and professional development for veteran teachers. In contrast to the U.S. national average of 40% attrition rates among first-year teachers, this program reports only 10% attrition from the profession.

By taking seriously the learning needs and potential of beginners, these programs lay the foundation for the development of proactive practitioners who can become engaged in and gain control of teaching-learning situations, share in policy-making decisions, conduct reflective self-renewing practice, and collaborate with colleagues (Berliner, 2000; Eraut, 1995; Hatton et al., 1991; Kagan, 1990; Kagan, 1992; van Manen, 1995). Providing beginners with similar induction experiences is a critical first step if they are to eventually move beyond the concerns of the novice to understand the moral, social, and ethical issues inherent in their interactions with students and to develop high expectations for student achievement and their own professional growth (Day, 1993; Diamond, 1991; Hatton & Smith, 1995; Kagan, 1990; van Manen, 1995; Zeichner, 1996). There is little hope for future professional development if the beginner takes early flight or becomes socialized into the teaching profession as one who works in isolated and unreflective practice.

Professional Development and Student Achievement

While positive induction practices critically affect the life of the beginning teacher, they are equally important to the students being taught. Students in the classrooms of unsupported, anxious, ill-equipped beginners (who often fall back on default practices to survive) are at a distinct disadvantage when compared to those being taught by supported, monitored interns (Berliner, 2000; Darling-Hammond, 2000; Etheridge, 1989; Snow, 1988; Weiss, 1999). Students' achievement levels are positively affected by teachers who are satisfied, motivated, experienced, and knowledgeable, and who remain to become a part of the school and community culture (Berliner, 2000; Darling-Hammond, 2000; Hatton et al., 1991; King & Newman, 2000; Tell, 2001; Wasley, 1999). Even more detrimental to students are the effects of having successive ill-prepared teachers, an important issue if the projected numbers of new teachers are realized in the coming decade (Darling-Hammond, 2000; Hatton et al., 1991; McIntyre, 2001).

If all students are to benefit from a high-quality, nurturing, and well-rounded education, the pockets of excellence referred to in various programs and districts must become available to all teachers. Evidence from recent meta-analysis reports linking qualified, experienced teaching to student achievement demands that the profession make every possible effort to ensure that beginners do not become attrition statistics and that veterans are offered the opportunity for sustained professional development in content-specific areas (Darling-Hammond, 2000). From a 50-state survey, Darling-Hammond (2000, p. 42) reports the following:

States interested in improving student achievement may be well-advised to attend, at least in part, to the preparation and qualifications of the teachers they hire and retain. It stands to reason that student learning should be enhanced by the efforts of teachers who are

knowledgeable in their field and are skillful at teaching it to others. . . Changes in course taking, curriculum content, testing, or textbooks make little difference if teachers do not know how to use these tools well and how to diagnose their students' learning needs.

Her study demonstrates that the states leading the nation in student achievement and those that have made the most significant gains in achievement are the states that have the most highly qualified teachers and that have made consistent investments in teachers' professional development. As well, these states invest in preservice teacher education programs and have hiring practices that do not favour hiring of unqualified teachers. The states where reform strategies consisted of "extensive testing systems coupled with rewards and sanctions for students, teachers, and schools" (Darling-Hammond, 2000, p. 20) did not experience similar gains in mathematics abilities and some saw a decline in reading performance. As well, few districts in these lower-achieving states require a degree in the subject to be taught or state certification as a prerequisite to being hired to teach.

In a similar large-scale investigation, Greenwald, Hedges, and Laine (1997) compiled data from 60 primary research studies to assess the relationship of various school inputs to student achievement. "While many would hope that increasing resources would be positively related to achievement, we did not expect that the synthesis of data from a wide variety of studies over a three decade period would yield conclusions so uniform in direction and comparable in magnitude" (Greenwald, Hedges, & Laine, 1997, p. 385). The school resources consistently related to student achievement in a significant and important manner included smaller schools, smaller classes, teacher ability, teacher education, and teacher experience.

In both reports the effects of teacher subject knowledge alone and of qualifications alone were not significant indicators of student achievement. In a related study of 9000 middle school students, those taught by certified mathematics teachers performed significantly better on higher-order mathematics problems than those taught by teachers without mathematics qualifications (Mandeville & Liu, 1997). These findings support the conclusions that teachers cannot effectively teach concepts they do not fully understand and that their discomfort, misconceptions, and potentially negative attitudes can be passed on to their students (Betts & Frost, 2000; Chidolue, 1996; Hardy, 1999).

Defining the Obvious?

In the developmental model a successful preservice program is not a teacher-building factory, but rather the first step in a long, collaborative, and reflective process that influences the professional development of a teacher's career. A preservice program can either set this process in motion with the appropriate tools, attitudes, and expectations, or it can set the novice up for a dizzying fall from the heights of unchallenged naive idealism. It is equally apparent that the professional development process changes from stage to stage in a teacher's career, beginning with the induction phase and carrying on to retirement. The benefits and effects of sustained professional and collegial growth reflect significantly in the achievement of all students. Just as the models of excellence in teacher preparation stand out as anomalies, so do the most successful induction practices and career-long professional development programs.

Not surprisingly, what proves successful in preservice and induction programs also characterizes effective inservice professional development programs and initiatives. In contrast to the traditional experience of top-down, one-shot wonders of professional activity days and meetings, effective programs are collaborative in their planning and implementation. Teachers have direct access to internal and external sources and experts, influence over substance and process, and sustained opportunities to experiment and reflect with feedback from experts and colleagues within the context and subject area in which they teach. Given that it is understood that sustained professional development can positively change teaching practices, which in turn increases students' chances for higher achievement and understanding, why do the majority of school boards not promote or finance relevant and collaborative induction and professional development programs? (Darling-Hammond, 2000; King & Newmann, 2000; National Academy of Education, 1999).

The Impact of Out-of-Field Teaching on Student Learning

Why, in the face of all that is known about the relationship between qualified, experienced teachers and student achievement, do many districts and school boards continue to deliberately place teachers, particularly beginners, in assignments out of their field of education and limited experience? (Council for Basic Education, 1986; Grissmer & Kirby, 1997; Hardy, 1999; Ingersoll, 1997; Ingersoll, 1998). In the 1980s, the Council for Basic Education began to study this issue, recognizing that states do not keep records of this practice, nor do they enforce rules against out-of-field placement. The proliferation and persistence of this practice cuts to the core of an administration's and often the public's understanding of the profession of teaching.

Underlying these circumstances is a pernicious notion that teachers are mere "facilitators" of learning—that once trained as teachers "in general," they have the ability to teach any subject. The simple fact is that teachers learning from a textbook while instructing from it are trapped within the borders of the page. (Council for Basic Education, 1986, p. 38)

Simply put, out-of-field teaching significantly downgrades the quality of instruction. Yet this does not stop principals and board officials from making extensive use of this practice to fill positions, particularly in difficult-to-teach schools and in courses for which insufficient numbers of teachers can be found. Recent research into the extent of this practice reveals shocking numbers of students being taught annually by teachers without even a university minor in the subject they are teaching. Ingersoll (1997) cites statistics from 24% to 54% for out-of-field placements, and some studies suggest even higher numbers for inner-city high schools and hard-to-staff areas. This amounts, in the United States, to several million students a year being taught English, history, and mathematics by teachers not qualified in these fields (Ingersoll, 1998). Research reported in previous sections of this paper emphasizes the relationship between qualified and experienced teachers and student achievement.

Traditionally, the practice of out-of-field placements has been attributed to an increased need for teachers resulting from retirements and rising enrollments. While the effects of an unprecedented graying work force is indeed beginning to be felt by schools, this account of

teacher turnover neglects the effect of the high number of beginners who leave the profession in their first five years of teaching. Out-of-field placements can thus be seen not just as the result of high teacher turnover, but also as the cause. Teachers in “high-consensus” schools teaching within their area of qualification (Kagan, 1990) do not experience these frustrations and demonstrate much lower turnover rates (see Hardy, 1999, for specific examples). “To give teachers very little say in how their school is run and then hold them accountable—that not only contributes to turnover, it’s unfair” (Hardy, 1999, p. 17). One major step in assuring that high quality teachers are available to teach all students would involve addressing the issues that lead to dramatically high rates of teacher turnover, particularly among beginners, thereby reducing or eliminating the need for out-of-field placements. A second major step would involve creating high quality programs of preservice teacher preparation, supported strongly by coherent strategies of professional development (including mentoring and induction) in the early years of teaching.

Conclusions

1. Reform of preservice teacher education is widely sought but rarely achieved. Schools and universities are organizations built on a conservative epistemology, with a complex interaction of existing practices and diverse assumptions about the nature and purpose of teaching and learning. As such, they do not change easily,
2. Educational researchers frequently call for reforms and educational policies that are informed by the research they have produced, yet they are rarely able to develop appropriate reforms and policies in their own institutions.
3. When policy makers impose external standards and requirements for testing and reporting, they run the risk of removing from schools and education faculties what little incentive remains for development of meaningful internal standards for quality in teaching and teacher education.

This report documents that there are important exceptions to the general rule of traditional approaches to teacher education. Collaboration and cooperation between schools and universities are major elements in successful programs that have brought real change to teacher education. The most promising criteria for judging the quality of preservice and inservice preparation appear to be the perceptions of those learning to teach and to improve their teaching. Coherence across instructional elements of programs and between instruction and personal classroom experiences is the most obvious indicator of quality. Educational research is not an end in itself but a means to the end of finding richer and more complex meanings in classroom teaching. The focus must always be on the quality of learning for each school’s students, and this focus can become central when teachers sense coherence, collaboration, and cooperation in their daily professional lives. In 2001, these qualities appear to be diminishing under growing pressure for a broad range of test scores. Ministries of Education, Faculties of Education, and Colleges of Teachers all need to find ways to mediate the tensions and contradictions between political directives and the voices of students and teachers in school and university classrooms.

References

- Ben-Peretz, M. (2001). The impossible role of teacher educators in a changing world. Journal of Teacher Education, 52, 48-56.
- Berliner, D. (1987). Ways of thinking about students and classrooms by more and less experienced teachers. In J. Calderhead (Ed.), Exploring teachers' thinking (pp. 60-83). London: Cassell.
- Berliner, D. (1994). Expertise: The wonder of exemplary performances. In J. N. Mangieri & C. C. Block (Eds.), Creating powerful thinking in teachers and students (pp. 1-43). Fort Worth, TX: Holt, Rinehart & Winston.
- Berliner, D.C. (2000). A personal response to those who bash teachers. Journal of Teacher Education, 51, 358-371.
- Betts, P., & Frost, L. (2000). Subject knowledge and teacher preparation. Education Canada, 40 (1), 38-39.
- Calderhead, J. (1989). Reflective teaching and teacher education. Teaching and Teacher Education, 5, 43-51.
- Carré, C. 1993. The first year of teaching. In N. Bennett & C. Carré (Eds.), Learning to teach (pp. 119-211). New York: Routledge.
- Chidolue, M. E. (1996) The relationship between teacher characteristics, learning environment and student achievement and attitude. Studies in Educational Evaluation, 22 (3), 263-274.
- Cochran-Smith, M. (1991). Reinventing student teaching. Journal of Teacher Education, 42, 104-118.
- Cochran-Smith, M. (2001). Constructing outcomes in teacher education: Policy, practice and pitfalls. Education Policy Analysis Archives, 9 (11). Retrieved April 23, 2001, from the World Wide Web: <http://epaa.asu.edu/epaa/v9n11.html>.
- Corcoran, E. (1981). Transition shock: The beginning teacher's paradox. Journal of Teacher Education, 32, 19-23.
- Council for Basic Education. (1986). The widespread abuse of out-of-field teaching. The Education Digest, 51, 36-39.
- Darling-Hammond, L. (1996). The quiet revolution: Rethinking teacher development. Educational Leadership, 53 (6), 4-11.
- Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. Education Policy Analysis Archives, 8 (1). Retrieved April 23, 2001, from the World Wide Web: <http://epaa.asu.edu/epaa/v8n1/>.

- Day, C. (1993). Reflection: A necessary but not sufficient condition for professional development. British Educational Journal, 19, 83-93.
- Diamond, C.T.P. (1991). Teacher education as transformation: A psychological perspective. Milton Keynes: Open University Press.
- Earl, L. (1999). Assessment and accountability in education: Improvement or surveillance? Education Canada, 39 (3), 4-6.
- Eraut, M. (1995). Schön shock: A case for reframing reflection-in-action? Teachers and Teaching: Theory and Practice, 1, 9-22.
- Ethell, R., & McMeniman, M. (2000). Unlocking the knowledge in action of an expert practitioner. Journal of Teacher Education, 51, 87-101.
- Etheridge, C. P. (1989). Acquiring the teaching culture: How beginners embrace practices different from university teachings. Qualitative Studies in Education, 2, 299-313.
- Fullan, M. (1998). Education reform: Are we on the right track? Education Canada, 38 (3), 4-7.
- Goodlad, J. 1991. Why we need a complete redesign of teacher education. Educational Leadership, 49 (3), 4-10.
- Goodman, J. (1987). Factors in becoming a proactive elementary school teacher: A preliminary study of selected novices. Journal of Education for Teaching, 13, 207-229.
- Greenwald, R., Hedges, L., & Laine, R. (1996). The effect of school resources on student achievement. Review of Educational Research, 66, 361-396.
- Grimmett, P. P. (1998). Reconceptualizing the practice of teacher preparation: Or not throwing out the concurrent model with the reform bathwater. Alberta Journal of Educational Research, 44, 251-267.
- Grissmer, D., & Kirby, S. N. (1997). Teacher turnover and teacher quality. Teachers College Record, 99, 45-56.
- Hardy, L. (1999). Why teachers leave. American School Board Journal, 186 (13), 13-17.
- Hatton, N.G., Watson, A.J., Squires, D.S. & Soliman, I.K. (1991). School staffing and the quality of education: Teacher staffing and mobility. Teaching and Teacher Education, 7, 279-293.
- Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. Teaching and Teacher Education, 11, 33-49.
- Housego, B.E.J. (1994). How prepared were you to teach? Beginning teachers assess their preparedness. Alberta Journal of Educational Research, 40, 355-373.

- Ingersoll, R. (1997). Teacher turnover and teacher quality: The recurring myth of teacher shortages. Teachers College Record, 99, 41-44.
- Ingersoll, R. (1998). The problem of out-of-field teaching. Phi Delta Kappan, 79, 773-776.
- Jambor, M., Patterson, J., & Jones, R. (1997). TEACH is for all new teachers. Principal, 77 (1), 36-38.
- Kagan, D. M. (1990). *Teacher's Workplace* meets *The Professors of Teaching*: A chance encounter at 30,000 feet. Journal of Teacher Education, 41 (4), 46-53.
- Kagan, D.M. (1992). Professional growth among preservice and beginning teachers. Review of Educational Research, 62, 129-169.
- Kane, P. (Ed.) (1991). The first year of teaching. New York: Walker and Company.
- Kilgore, K., Ross, D. & Zbikowski, J. (1990). Understanding the teaching perspectives of first-year teachers. Journal of Teacher Education, 41, 28-38.
- King, M. B., & Newmann, F. M. (2000). Will teacher learning advance school goals? Phi Delta Kappan, 81, 576-580.
- Kohn, A. (2000). Burnt at the high stakes. Journal of Teacher Education, 51, 315-327.
- Korthagen, F.A.J. (2001). Linking practice and theory: The pedagogy of realistic teacher education. Mahwah, NJ: Lawrence Erlbaum Associates.
- Korthagen, F.A.J. (2001, April). Linking practice and theory: The pedagogy of realistic teacher education. Paper presented at the AERA 2001 Symposium, Seattle.
- Le Maistre, C. (2000). Mentoring neophyte teachers: Lessons learned from experience. McGill Journal of Education, 35, 83-87.
- Lewington, J. (1998). So many reforms, so little to show. Education Canada, 38 (3), 18-19.
- Mandeville, G.K., & Liu, Q. (1997). The effect of teacher certification and task level on mathematics achievement. Teaching and Teacher Education, 13, 397-407.
- McIntyre, F. (March, 2001). Job applicants should look north or try Toronto. Professionally Speaking: The Magazine of the Ontario College of Teachers, 53-55. Retrieved April 23, 2001, from the World Wide Web:
http://www.oct.on.ca/english/ps/march_2001/default.htm
- McPherson, S. (2000). From practicum to practice: Two beginning teachers' perceptions of the quality of their preservice preparation. Unpublished master's thesis. Queen's University Faculty of Education, Kingston, Ontario.
- Melnick, S.L., & Pullin, D. (2000). Can you take dictation? Prescribing teacher quality through testing. Journal of Teacher Education, 51, 262-275.

- Montgomery Halford, J. (1998). Easing the way for new teachers. Educational Leadership, 55 (5), 33-36.
- Moore, K.D., & Looper, S. (1997). Teacher preparation: A collaborative model. The Teacher Educator, 32, 152-164.
- National Academy of Education. (1999). Recommendations regarding research priorities: An advisory report to the National Educational Research Policy and Priorities Board. New York: Author. Retrieved April 23, 2001, from the World Wide Web: <http://www.nae.nyu.edu/pubs/download.htm>.
- Olson, M. & Osborne, J. (1991). Learning to teach: The first year. Teaching and Teacher Education, 7, 331-343.
- Runte, R. (1998). The impact of centralized examinations on teacher professionalism. Canadian Journal of Education, 23, 166-181.
- Russell, T. (2001, April). Radical program change in preservice teacher education: What and how we learn from personal and institutional experience. Paper presented at the meeting of the American Educational Research Association, Seattle.
- Ryan, K. (1970). Don't smile until Christmas. Chicago: University of Chicago Press.
- Schempp, P., Tan, S., Manross, D., & Fincher, M. (1998). Differences in novice and competent teacher's knowledge. Teachers and Teaching: Theory and Practice, 4, 9-20.
- Schofield, J. (October, 11, 1999). Putting teachers to the test. Maclean's (Toronto ed.), 112 (41), 64-65.
- Schön, D.A. (1983). The reflective practitioner: How professionals think in action. New York: Basic Books.
- Schön, D. A. (1995, Nov./Dec.). Knowing-in-action: The new scholarship requires a new epistemology. Change, 27, 27-34.
- Smith, N., & Shapson, S. (1999) Transformative teaching: An agenda for faculties of education. Education Canada, 39 (1), 4-6.
- Snow, S. (1988). Concerns of the first year teacher. In P. Holborn, M. Wideen, & I. Andrews (Eds.) Becoming a teacher (pp. 288-293). Toronto: Kagan and Woo Limited.
- Stedman, P, & Stroot, S.A. (1998). Teachers helping teachers. Educational Leadership, 55 (5), 37-38.
- Tell, C. (1999). Renewing the profession of teaching: A conversation with John Goodlad. Educational Leadership, 56 (8), 14-19.

- Tell, C. (2001). Appreciating good teaching: A conversation with Lee Shulman. Educational Leadership, 58 (5), 6-11.
- Tom, A.R. (1997). Redesigning teacher education. Albany, NY: State University of New York Press.
- Van Manen, M. (1995). On the epistemology of reflective practice. Teachers and Teaching: Theory and Practice, 1, 33-50.
- Vann, A. S. (1999). Four steps to improve teacher quality. Educational Horizons, 77 (2), 59-60.
- Vavrus, M. (in press). Successful teacher education program change in the era of reform: An essay review of *Studies in Excellence in Teacher Education*. Teaching and Teacher Education.
- Wasley, P. (1999). Supporting beginning teachers: Teaching worth celebrating. Educational Leadership, 56, 8-13.
- Weinstein, C.S. (1988). Preservice teachers' expectations about the first year of teaching. Teaching and Teacher Education, 4, 31-40.
- Weiss, E. M. (1999). Perceived workplace conditions and first-year teachers' morale, career choice commitment, and planned retention: A secondary analysis. Teaching and Teacher Education, 15, 861-879.
- Wiener, M. (1999). Quebec teachers: Submerged in a sea of reform. McGill Journal of Education, 34, 261-279.
- Wilmore, E. (1996). Brave new world: Field-based teacher preparation. Educational Leadership, 53 (6), 59-63.
- Xiaobin, L. (1999). Preparedness to teach: A comparison between consecutive and concurrent education students. Alberta Journal of Educational Research, 45, 184-197.
- Zeichner, K. (1996). Teachers as reflective practitioners and the democratization of school reform. In K. Zeichner, S. Melnick, & M. L. Gomer (Eds.), Currents of reform in preservice teacher education (pp. 199-214). New York: Teacher College Press.