

CONSTRUCTING 21st-CENTURY TEACHER EDUCATION

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Much of what teachers need to know to be successful is invisible to lay observers, leading to the view that teaching requires little formal study and to frequent disdain for teacher education programs. The weakness of traditional program models that are collections of largely unrelated courses reinforce this low regard. This article argues that we have learned a great deal about how to create stronger, more effective teacher education programs. Three critical components of such programs include tight coherence and integration among courses and between course work and clinical work in schools, extensive and intensely supervised clinical work integrated with course work using pedagogies linking theory and practice, and closer, proactive relationships with schools that serve diverse learners effectively and develop and model good teaching. Also, schools of education should resist pressures to water down preparation, which ultimately undermine the preparation of entering teachers, the reputation of schools of education, and the strength of the profession.

Keywords: *field-based experiences; foundations of education; student teaching; supervision; theories of teacher education*

The previous articles have articulated a spectacular array of things that teachers should know and be able to do in their work. These include understanding many things about how people learn and how to teach effectively, including aspects of pedagogical content knowledge that incorporate language, culture, and community contexts for learning. Teachers also need to understand the person, the spirit, of every child and find a way to nurture that spirit. And they need the skills to construct and manage classroom activities efficiently, communicate well, use technology, and reflect on their practice to learn from and improve it continually.

The importance of powerful teaching is increasingly important in contemporary society. Standards for learning are now higher than they have ever been before, as citizens and workers need greater knowledge and skill to survive and succeed. Education is increasingly important to the success of both individuals and

nations, and growing evidence demonstrates that—among all educational resources—teachers' abilities are especially crucial contributors to students' learning. Furthermore, the demands on teachers are increasing. Teachers need not only to be able to keep order and provide useful information to students but also to be increasingly effective in enabling a diverse group of students to learn ever more complex material. In previous decades, they were expected to prepare only a small minority for ambitious intellectual work, whereas they are now expected to prepare virtually all students for higher order thinking and performance skills once reserved to only a few.

Given this variety of teacher education goals and the realities of 21st-century schooling, the task for this article is to consider what those of us in the field of teacher education might do to support the kinds of learning teachers require to undertake this complex job with some hope of

success. In responding to this question, I want to draw on the recently released work of the National Academy of Education Committee on Teacher Education, a group of researchers, teachers, and teacher educators that worked for 4 years to summarize how what we have come to know about how children and adults learn can inform the curriculum and design of teacher education programs (Darling-Hammond & Bransford, 2005).¹

The National Academy of Education Committee's report begins with this description:

To a music lover watching a concert from the audience, it would be easy to believe that a conductor has one of the easiest jobs in the world. There he stands, waving his arms in time with the music, and the orchestra produces glorious sounds, to all appearances quite spontaneously. Hidden from the audience—especially from the musical novice—are the conductor's abilities to read and interpret all of the parts at once, to play several instruments and understand the capacities of many more, to organize and coordinate the disparate parts, to motivate and communicate with all of the orchestra members. In the same way that conducting looks like hand-waving to the uninitiated, teaching looks simple from the perspective of students who see a person talking and listening, handing out papers, and giving assignments. Invisible in both of these performances are the many kinds of knowledge, unseen plans, and backstage moves—the skunkworks, if you will, that allow a teacher to purposefully move a group of students from one set of understandings and skills to quite another over the space of many months.

On a daily basis, teachers confront complex decisions that rely on many different kinds of knowledge and judgment and that can involve high-stakes outcomes for students' futures. To make good decisions, teachers must be aware of the many ways in which student learning can unfold in the context of development, learning differences, language and cultural influences, and individual temperaments, interests, and approaches to learning. In addition to foundational knowledge about these areas of learning and performance, teachers need to know how to take the steps necessary to gather additional information that will allow them to make more grounded judgments about what is going on and what strategies may be helpful. Above all, teachers need to keep what is best for the child at the center of their decision making. This sounds like a simple point but it is a complex matter that has profound implications for what happens to and for many children in school. (Darling-Hammond & Bransford, 2005, pp. 1-2)

CONTEMPORARY DILEMMAS FOR TEACHER EDUCATION

Both the apparent ease of teaching to the noninitiated and the range of things teachers really do need to know to be successful with all students—not just those who can learn easily on their own—are relevant to the dilemmas that teacher education programs find themselves in today. On one hand, many lay people and a large share of policy makers hold the view that almost anyone can teach reasonably well—that entering teaching requires, at most, knowing something about a subject, and the rest of the fairly simple “tricks of the trade” can be picked up on the job.

These notions—which derive both from a lack of understanding of what good teachers actually do behind the scenes and from tacit standards for teaching that are far too low—lead to pressures for backdoor routes into teaching that deny teachers access to much of the knowledge base for teaching and often, to the supervised clinical practice that would provide them with models of what good teachers do and how they understand their work. It is tragic that individuals who are likely to be seduced into teaching through pathways that minimize their access to knowledge are those who teach high-need students in low-income urban and rural schools where the most sophisticated understanding of teaching is needed.

On the other hand, the realities of what it takes to teach in U.S. schools such that all children truly have an opportunity to learn are nearly overwhelming. In the classrooms most beginning teachers will enter, at least 25% of students live in poverty and many of them lack basic food, shelter, and health care; from 10% to 20% have identified learning differences; 15% speak a language other than English as their primary language (many more in urban settings); and about 40% are members of racial/ethnic “minority” groups, many of them recent immigrants from countries with different educational systems and cultural traditions.

Not only is the kind of practice needed to teach students with a wide range of learning needs an extremely complex, knowledge-intensive undertaking—demanding of extraordi-

nary personal and professional skills—but also U.S. schools rarely support this kind of practice. In contrast to schools in high-achieving European and Asian countries, American factory-model schools offer fewer opportunities for teachers to come to know students well during long periods of time and much less time for teachers to spend working with one another to develop curriculum, plan lessons, observe and discuss teaching strategies, and assess student work in authentic ways. As the National Academy of Education Committee on Teacher Education observed, “Many analysts have noted that there is very little relationship between the organization of the typical American school and the demands of serious teaching and learning” (Darling-Hammond & Bransford, 2005, p. 4).

Thus, schools of education must design programs that help prospective teachers to understand deeply a wide array of things about learning, social and cultural contexts, and teaching and be able to enact these understandings in complex classrooms serving increasingly diverse students; in addition, if prospective teachers are to succeed at this task, schools of education must design programs that transform the kinds of settings in which novices learn to teach and later become teachers. This means that the enterprise of teacher education must venture out further and further from the university and engage ever more closely with schools in a mutual transformation agenda, with all of the struggle and messiness that implies. It also means that teacher educators must take up the charge of educating policy makers and the public about what it actually takes to teach effectively in today’s world—both in terms of the knowledge and skills that are needed and in terms of the school contexts that must be created to allow teachers to develop and use what they know on behalf of students (Fullan, 1993).

Strides were made on both of these agendas in the late 1980s when the Holmes Group (1986, 1990) issued the first of its reports, the Carnegie Forum on Education and the Economy Task Force on Teaching as a Profession (1986) outlined a major agenda for professionalizing teaching, and the National Network for Educational Renewal was launched (Goodlad, 1990,

1994). Many important reforms of teacher education that have since taken place owe much of the impetus to these initiatives. These have strengthened both the subject matter and pedagogical preparation teachers receive (and the content pedagogical preparation that joins the two), introduced professional development school (PDS) partnerships that have sometimes changed the nature of schooling along with training for teaching, and created signature pedagogies and more authentic assessments for teacher education that link theory and practice and are beginning to change the ways in which teachers are taught.

However, in recent years, under pressure from opponents of teacher education and with incentives for faster, cheaper alternatives (see, e.g., U.S. Department of Education, 2002), teacher education as an enterprise has probably launched more new weak programs that underprepare teachers, especially for urban schools, than it has further developed the stronger models that demonstrate what intense preparation can accomplish. As a result, beginning teacher attrition has continued to increase (National Commission on Teaching and America’s Future, 2003), and the teaching force is becoming increasingly bimodal. Although some teachers are better prepared than they ever were before, a growing number who serve the most vulnerable students enter teaching before they have been prepared to teach and are increasingly ill prepared for what they must accomplish (Darling-Hammond & Sykes, 2003). In addition, teacher educators seem to have lost their voice in arguing for—and helping to shape—the kinds of schools and education that will allow teachers to practice well and children to learn and thrive.

Thus, I would argue that teacher educators, as a professional collective, need to work more intently to build on what has been learned about developing stronger models of teacher preparation—including the much stronger relationships with schools that press for mutual transformations of teaching and learning to teach—while resisting the pressures and incentives that lead to the creation of weaker models that ultimately reinforce dissatisfaction with the

outcomes of teacher education and undermine the educational system.

BUILDING STRONG MODELS OF PREPARATION

Although reform initiatives have triggered much discussion about the structures of teacher education programs (e.g., 4 year or 5 year, undergraduate or graduate) and the certification categories into which programs presumably fit (e.g., “traditional” or “alternative”), there has been less discussion about what goes on within the black box of the program—inside the courses and clinical experiences that candidates encounter—and about how the experiences programs design for candidates cumulatively add up to a set of knowledge, skills, and dispositions that determine what teachers actually do in the classroom.

Knowledge for Teaching: The “What” of Teacher Education

There are many ways of configuring the knowledge that teachers may need. In articulating the core concepts and skills that should be represented in a common curriculum for teacher education, the National Academy of Education Committee on Teacher Education adopted a framework that is organized on three intersecting areas of knowledge found in many statements of standards for teaching (see Figure 1):

- knowledge of learners and how they learn and develop within social contexts, including knowledge of language development;
- understanding of curriculum content and goals, including the subject matter and skills to be taught in light of disciplinary demands, student needs, and the social purposes of education; and
- understanding of and skills for teaching, including content pedagogical knowledge and knowledge for teaching diverse learners, as these are informed by an understanding of assessment and of how to construct and manage a productive classroom.

These interactions between learners, content, and teaching are framed by two important conditions for practice: First is the fact that teaching is a profession with certain moral and technical

expectations—especially the expectation that teachers, working collaboratively, will acquire, use, and continue to develop shared knowledge on behalf of students. Second is the fact that, in the United States, education must serve the purposes of a democracy. This latter condition means that teachers assume the purpose of enabling young people to participate fully in political, civic, and economic life in our society. It also means that education—including teaching—is intended to support equitable access to what that society has to offer.

The implications of this framework for teacher education are several: First, like the work of other professions, teaching is in the service of students, which creates the expectation that teachers will be able to come to understand how students learn and what various students need if they are to learn more effectively—and that they will incorporate this into their teaching and curriculum construction. Deep understanding of learning and learning differences as the basis of constructing curriculum has not historically been a central part of teacher education. These domains were typically reserved to psychologists and curriculum developers who were expected to use this knowledge to develop tests and texts, whereas teachers learned teaching strategies to implement curriculum that was presumably designed by others. In some ways, this approach to training teachers was rather like training doctors in the techniques of surgery without giving them a thorough knowledge of anatomy and physiology. Without knowing deeply how people learn, and how different people learn differently, teachers lack the foundation that can help them figure out what to do when a given technique or text is not effective with all students. And teachers cannot achieve ambitious goals by barreling from one lesson to the next without understanding how to construct a purposeful curriculum. This requires incorporating subject matter goals, knowledge of learning, and an appreciation for children’s development and needs. Connecting what is to be learned to the learners themselves requires curriculum work, even when teachers have access to a range of texts and materials.

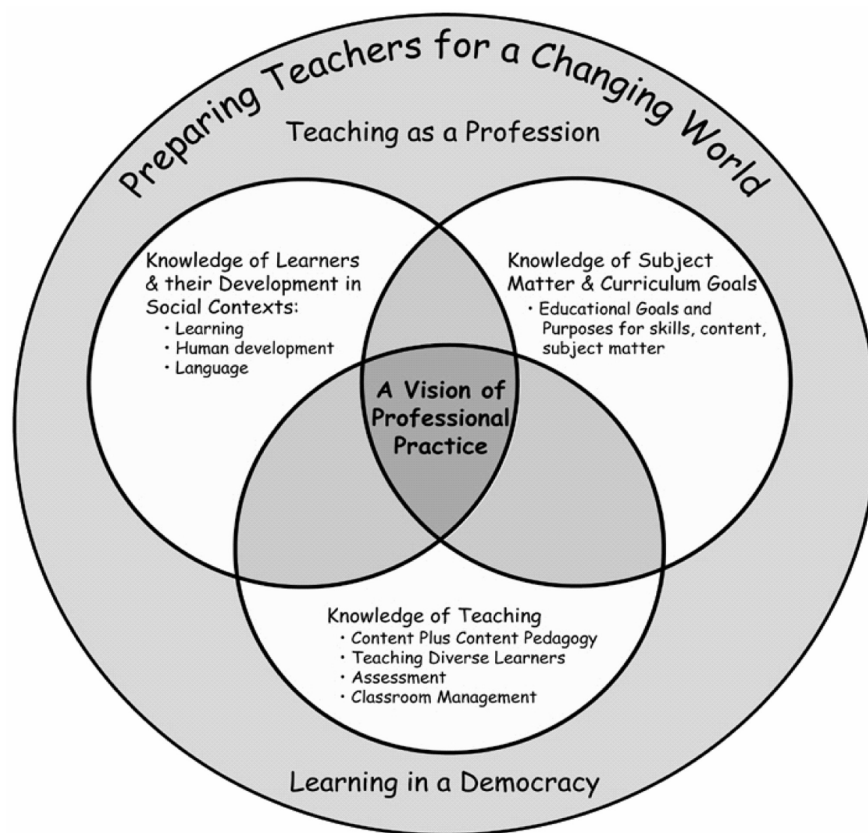


FIGURE 1: A Framework for Understanding Teaching and Learning
 SOURCE: Darling-Hammond & Bransford (2005, p. 11). PERMISSION IS BEING OBTAINED BY AUTHOR

Furthermore, the work of teaching, like that of other professions, is viewed as nonroutine and reciprocally related to learning; that is, what teachers do must be continually evaluated and reshaped based on whether it advances learning, rather than carried out largely by curriculum packages, scripts, and pacing schedules as many districts currently require. This means that teachers need highly refined knowledge and skills for assessing pupil learning, and they need a wide repertoire of practice—along with the knowledge to know when to use different strategies for different purposes. Rather than being subject to the pendulum swings of polarized teaching policies that rest on simplistic ideas of best practice—“whole language” versus “phonics,” for example, or inquiry learning versus direct instruction—teachers need to know how and when to use a range of practices to accomplish their goals with different stu-

dents in different contexts. And given the wide range of learning situations posed by contemporary students—who represent many distinct language, cultural, and learning approaches—teachers need a much deeper knowledge base about teaching for diverse learners than ever before and more highly developed diagnostic abilities to guide their decisions.

Finally, teachers must be able continually to learn to address the problems of practice they encounter and to meet the unpredictable learning needs of all of their students—and they must take responsibility for contributing what they learn to not only their own practice but also that of their colleagues. This means that programs must help teachers develop the disposition to continue to seek answers to difficult problems of teaching and learning and the skills to learn from practice (and from their colleagues) as well as to learn for practice.

These expectations for teacher knowledge mean that programs need not only to provide teachers access to more knowledge, considered more deeply, but also to help teachers learn how to continually access knowledge and inquire into their work. The skills of classroom inquiry include careful observation and reasoned analysis, as well as dispositions toward an open and searching mind and a sense of responsibility and commitment to children's learning (Zeichner & Liston, 1996). Preparing teachers as classroom researchers and expert collaborators who can learn from one another is essential when the range of knowledge for teaching has grown so expansive that it cannot be mastered by any individual and when students' infinitely diverse ways of learning are recognized as requiring continual adaptations in teaching.

Program Designs and Pedagogies: The "How" of Teacher Education

Although it is important to have well-chosen courses that include core knowledge for teaching, it is equally important to organize prospective teachers' experiences so that they can integrate and use their knowledge in skillful ways in the classroom. This is probably the most difficult aspect of constructing a teacher education program. Teacher educators must worry about not only what to teach but also how, so that knowledge for teaching actually shapes teachers' practice and enables them to become adaptive experts who can continue to learn.

Accomplishing this requires addressing some special—and perennial—challenges in learning to teach. Three in particular stand out. First, learning to teach requires that new teachers come to understand teaching in ways quite different from their own experience as students. Dan Lortie (1975) called this problem "the apprenticeship of observation," referring to the learning that takes place by virtue of being a student for 12 or more years in traditional classroom settings. Second, learning to teach also requires that new teachers learn not only to "think like a teacher" but also to "act as a teacher"—what Mary Kennedy (1999) has termed "the problem of enactment." Teachers

need not only to understand but also to do a wide variety of things, many of them simultaneously. Finally, learning to teach requires that new teachers be able to understand and respond to the dense and multifaceted nature of the classroom, juggling multiple academic and social goals requiring trade-offs from moment to moment and day to day (Jackson, 1974). They must learn to deal with "the problem of complexity" that is made more intense by the constantly changing nature of teaching and learning in groups.

How can programs of teacher preparation confront these and other problems of learning to teach? A study examining seven exemplary teacher education programs—public and private, undergraduate and graduate, large and small—that produce graduates who are extraordinarily well prepared from their first days in the classroom finds that despite outward differences, the programs had common features, including:

- a common, clear vision of good teaching that permeates all course work and clinical experiences, creating a coherent set of learning experiences;
- well-defined standards of professional practice and performance that are used to guide and evaluate course work and clinical work;
- a strong core curriculum taught in the context of practice and grounded in knowledge of child and adolescent development and learning, an understanding of social and cultural contexts, curriculum, assessment, and subject matter pedagogy;
- extended clinical experiences—at least 30 weeks of supervised practicum and student teaching opportunities in each program—that are carefully chosen to support the ideas presented in simultaneous, closely interwoven course work;
- extensive use of case methods, teacher research, performance assessments, and portfolio evaluation that apply learning to real problems of practice;
- explicit strategies to help students to confront their own deep-seated beliefs and assumptions about learning and students and to learn about the experiences of people different from themselves;
- strong relationships, common knowledge, and shared beliefs among school- and university-based faculty jointly engaged in transforming teaching, schooling, and teacher education (Darling-Hammond, in press).

These features confront many of the core dilemmas of teacher education: the strong influence of the apprenticeship of observation

candidates bring with them from their years as students in elementary and secondary schools, the presumed divide between theory and practice, the limited personal and cultural perspectives all individuals bring to the task of teaching, and the difficult process of helping people learn to enact their intentions in complex settings. They help produce novice teachers who are able, from their first days in the classroom, to practice like many seasoned veterans, productively organizing classrooms that teach challenging content to very diverse learners with levels of skill many teachers never attain.

In addition to the deeper knowledge base I have described above, such powerful teacher education, I believe, rests on certain critically important pedagogical cornerstones that have been difficult to attain in many programs since teacher education moved from normal schools into universities in the 1950s. I would like to highlight three of these here because I think they are essential to achieving radically different outcomes from preparation programs.

Coherence and Integration

The first is a tight coherence and integration among courses and between course work and clinical work in schools that challenges traditional program organizations, staffing, and modes of operation. The extremely strong coherence extraordinary programs have achieved creates an almost seamless experience of learning to teach. In contrast to the many critiques that have highlighted the structural and conceptual fragmentation of traditional undergraduate teacher education programs (see, e.g., Goodlad, Soder, & Sirotnik, 1990; Howey & Zimpher, 1989; Zeichner & Gore, 1990), course work in highly successful programs is carefully sequenced based on a strong theory of learning to teach; courses are designed to intersect with each other, are aggregated into a well-understood landscape of learning, and are tightly interwoven with the advisement process and students' work in schools. Subject matter learning is brought together with content pedagogy through courses that treat them together; program sequences also create cross-course links. Faculty plan together and syllabi are shared

across university divisions as well as within departments. Virtually all of the closely interrelated courses involve applications in classrooms where observations or student teaching occur. These classrooms, in turn, are selected because they model the kind of practice that is discussed in courses and advisement. In some particularly powerful programs, faculty who teach courses also supervise and advise teacher candidates and sometimes even teach children and teachers in placement schools, bringing together these disparate program elements through an integration of roles.

In such intensely coherent programs, core ideas are reiterated across courses and the theoretical frameworks animating courses and assignments are consistent across the program. These frameworks "explicate, justify, and build consensus on such fundamental conceptions as the *role* of the teacher, the *nature* of teaching and learning, and the *mission* of the school in this democracy," enabling "shared faculty leadership by underscoring collective roles as well as individual course responsibilities" (Howey & Zimpher, 1989, p. 242).

Programs that are largely a collection of unrelated courses without a common conception of teaching and learning have been found to be relatively feeble change agents for affecting practice among new teachers (Zeichner & Gore, 1990). Cognitive science affirms that people learn more effectively when ideas are reinforced and connected both in theory and in practice. Although this seems obvious, creating coherence has been difficult in teacher education because of departmental divides, individualistic norms, and the hiring of part-time adjunct instructors in some institutions that have used teacher education as a "cash cow" rather than an investment in our nation's future. Fortunately, a number of studies of teacher education reform document how programs have overcome the centrifugal forces that leave candidates on their own to make sense of disparate, unconnected experiences (Howey & Zimpher, 1989; Patterson, Michelli, & Pacheco, 1999; Tatto, 1996; Wideen, Mayer-Smith, & Moon, 1998).

Extensive, Well-Supervised Clinical Experience
Linked to Course Work Using Pedagogies That
Link Theory and Practice

The second critically important feature that requires a wrenching change from traditional models of teacher education is the importance of extensive and intensely supervised clinical work—tightly integrated with course work—that allows candidates to learn from expert practice in schools that serve diverse students. All of the adjectives in the previous sentence matter: *Extensive* clinical work, *intensive* supervision, *expert* modeling of practice, and *diverse* students are critical to allowing candidates to learn to practice *in* practice with students who call for serious teaching skills (Ball & Cohen, 1999). Securing these features will take radical overhaul of the status quo. Furthermore, to be most powerful, this work needs to incorporate newly emerging pedagogies—such as close analyses of learning and teaching, case methods, performance assessments, and action research—that link theory and practice in ways that theorize practice and make formal learning practical.

One of the perennial dilemmas of teacher education is how to integrate theoretically based knowledge that has traditionally been taught in university classrooms with the experience-based knowledge that has traditionally been located in the practice of teachers and the realities of classrooms and schools. Traditional versions of teacher education have often had students taking batches of front-loaded course work in isolation from practice and then adding a short dollop of student teaching to the end of the program—often in classrooms that did not model the practices that had previously been described in abstraction. By contrast, the most powerful programs require students to spend extensive time in the field throughout the entire program, examining and applying the concepts and strategies they are simultaneously learning about in their courses alongside teachers who can show them how to teach in ways that are responsive to learners.

Such programs typically require at least a full academic year of student teaching under the direct supervision of one or more teachers who

model expert practice with students who have a wide range of learning needs, with the candidate gradually assuming more independent responsibility for teaching. This allows prospective teachers to grow “roots” on their practice, which is especially important if they are going to learn to teach in learner-centered ways that require diagnosis, intensive assessment and planning to adapt to learners’ needs, and a complex repertoire of practices judiciously applied.

Many teacher educators have argued that novices who have experience in classrooms are more prepared to make sense of the ideas that are addressed in their academic work and that student teachers see and understand both theory and practice differently if they are taking course work concurrently with fieldwork. A growing body of research confirms this belief, finding that teachers-in-training who participate in fieldwork with course work are better able to understand theory, to apply concepts they are learning in their course work, and to support student learning (Baumgartner, Koerner, & Rust, 2002; Denton, 1982; Henry, 1983; Ross, Hughes, & Hill, 1981; Sunal, 1980).

It is not just the availability of classroom experience that enables teachers to apply what they are learning, however. Recent studies of learning to teach suggest that immersing teachers in the materials of practice and working on particular concepts using these materials can be particularly powerful for teachers’ learning. Analyzing samples of student work, teachers’ plans and assignments, videotapes of teachers and students in action, and cases of teaching and learning can help teachers draw connections between generalized principles and specific instances of teaching and learning (Ball & Cohen, 1999; Hammerness, Darling-Hammond, & Shulman, 2002; Lampert & Ball, 1998).

It is worth noting that many professions, including law, medicine, psychology, and business, help candidates bridge the gap between theory and practice—and develop skills of reflection and close analysis—by engaging them in the reading and writing of cases. Many highly successful teacher education programs require candidates to develop case studies on students,

on aspects of schools and teaching, and on families or communities by observing, interviewing, examining student work, and analyzing data they have collected. Proponents argue that cases support both systematic learning from particular contexts as well as from more generalized theory about teaching and learning. Shulman (1996) suggested that cases are powerful tools for professional learning because they require professionals in training to

move up and down, back and forth, between the memorable particularities of cases and the powerful generalizations and simplifications of principles and theories. Principles are powerful but cases are memorable. Only in the continued interaction between principles and cases can practitioners and their mentors avoid the inherent limitations of theory-without-practice or the equally serious restrictions of vivid practice without the mirror of principle. (p. 201)

These benefits of connecting profession-wide knowledge to unique contexts can also be gained by the skillful use of tools such as portfolios, teachers' classroom inquiries and research, and analyses of specific classrooms, teachers, or teaching situations when teacher educators provide thoughtful readings, guidance, and feedback.

Although it is helpful to experience classrooms and analyze the materials and practices of teaching, it is quite another thing to put ideals into action. Often, the clinical side of teacher education has been fairly haphazard, depending on the idiosyncrasies of loosely selected placements with little guidance about what happens in them and little connection to university work. And university work has often been "too theoretical"—meaning abstract and general—in ways that leave teachers bereft of specific tools to use in the classroom. The theoretically grounded tools teachers need are many, ranging from knowledge of curriculum materials and assessment strategies to techniques for organizing group work and planning student inquiries—and teachers need opportunities to practice with these tools systematically (Grossman, Smagorinsky, & Valencia, 1999).

Powerful teacher education programs have a clinical curriculum as well as a didactic curriculum. They teach candidates to turn analysis into

action by applying what they are learning in curriculum plans, teaching applications, and other performance assessments that are organized on professional teaching standards. These attempts are especially educative when they are followed by systematic reflection on student learning in relation to teaching and receive detailed feedback, with opportunities to retry and improve. Furthermore, recent research suggests that to be most productive, these opportunities for analysis, application, and reflection should derive from and connect to both the subject matter and the students candidates teach (Ball & Bass, 2000; Grossman & Stodolsky, 1995; Shulman, 1987). In this way, prospective teachers learn the fine-grained stuff of practice in connection to the practical theories that will allow them to adapt their practice in a well-grounded fashion, innovating and improvising to meet the specific classroom contexts they later encounter.

New Relationships With Schools

Finally, these kinds of strategies for connecting theory and practice cannot succeed without a major overhaul of the relationships between universities and schools that ultimately produce changes in the content of schooling as well as teacher training. It is impossible to teach people how to teach powerfully by asking them to imagine what they have never seen or to suggest they "do the opposite" of what they have observed in the classroom. No amount of course work can, by itself, counteract the powerful experiential lessons that shape what teachers actually do. It is impractical to expect to prepare teachers for schools as they should be if teachers are constrained to learn in settings that typify the problems of schools as they have been—where isolated teachers provide examples of idiosyncratic, usually atheoretical practice that rarely exhibits a diagnostic, assessment-oriented approach and infrequently offers access to carefully selected strategies designed to teach a wide range of learners well.

These settings simply do not exist in large numbers—and where individual teachers have created classroom oases, there have been few long-lasting reforms to leverage transformations in whole schools. Some very effective part-

nerships, however, have helped to create school environments for teaching and teacher training—through PDSs, lab schools, and school reform networks—that are such strong models of practice and collaboration that the environment itself serves as a learning experience for teachers (Darling-Hammond, *in press*; Trachtman, 1996). In such schools, teachers are immersed in strong and widely shared cultural norms and practices and can leverage them for greater effect through professional studies offering research, theory, and information about other practices and models. Such schools also support advances in knowledge by serving as sites where practice-based and practice-sensitive research can be carried out collaboratively by teachers, teacher educators, and researchers.

In highly developed PDS models, curriculum reforms and other improvement initiatives are supported by the school and often the district; school teams involving both university and school educators work on such tasks as curriculum development, school reform, and action research; university faculty are typically involved in teaching courses and organizing professional development at the school site and may also be involved in teaching children; and school-based faculty often teach in the teacher education program. Most classrooms are sites for practica and student teaching placements, and cooperating teachers are trained to become teacher educators, often holding meetings regularly to develop their mentoring skills. Candidates learn in all parts of the school, not just individual classrooms; they receive more frequent and sustained supervision and feedback and participate in more collective planning and decision making among teachers at the school (Abdal-Haqq, 1998, pp. 13-14; Darling-Hammond, 2005; Trachtman, 1996).

Some universities have sought to create PDS relationships in schools that are working explicitly on an equity agenda, either in new schools designed to provide more equitable access to high-quality curriculum for diverse learners or in schools where faculty are actively confronting issues of tracking, poor teaching, inadequate or fragmented curriculum, and unresponsive systems (see, e.g., Darling-Hammond,

in press; Guadarrama, Ramsey, & Nath, 2002). In these schools, student teachers or interns are encouraged to participate in all aspects of school functioning, ranging from special education and support services for students to parent meetings, home visits, and community outreach to faculty discussions and projects aimed at ongoing improvement. This kind of participation helps prospective teachers understand the broader institutional context for teaching and learning and begin to develop the skills needed for effective participation in collegial work concerning school improvement throughout their careers.

Developing sites where state-of-the-art practice is the norm is a critical element of strong teacher education, and it has been one of most difficult. Quite often, if novices are to see and emulate high-quality practice, especially in schools serving the neediest students, it is necessary not only to seek out individual cooperating teachers but also to develop the quality of the schools so that prospective teachers can learn productively. Such school development is also needed to create settings where advances in knowledge and practice can occur. Seeking diversity by placing candidates in schools serving low-income students or students of color that suffer from the typical shortcomings many such schools face can actually be counterproductive. As Gallego (2001) noted,

Though teacher education students may be placed in schools with large, culturally diverse student populations, many of these schools . . . do not provide the kind of contact with communities needed to overcome negative attitudes toward culturally different students and their families and communities (Zeichner, 1992). Indeed, without connections between the classroom, school, and local communities, classroom field experiences may work to strengthen pre-service teachers' stereotypes of children, rather than stimulate their examination (Cochran-Smith, 1995; Haverman & Post, 1992), and ultimately compromise teachers' effectiveness in the classroom (Zeichner, 1996). (p. 314)

Thus, working to create PDSs that construct state-of-the-art practice in communities where students are typically underserved by schools helps transform the eventual teaching pool for such schools and students. In this way, PDSs de-

velop school practice as well as the individual practice of new teacher candidates. Such PDSs simultaneously restructure school programs and teacher education programs, redefining teaching and learning for all members of the profession and the school community.

Although not all of the more than 1,000 school partnerships (Abdal-Haqq, 1998) created in the name of PDS work have been successful, there is growing evidence of the power of this approach. Studies of highly developed PDSs suggest that teachers who graduate from such programs feel more knowledgeable and prepared to teach and are rated by employers, supervisors, and researchers as better prepared than other new teachers. Veteran teachers working in highly developed PDSs describe changes in their own practice and improvements at the classroom and school levels as a result of the professional development, action research, and mentoring that are part of the PDS. Some studies document gains in student performance tied to curriculum and teaching interventions resulting from PDS initiatives (for a summary, see Darling-Hammond & Bransford, 2005, pp. 415-416).

Although research has also demonstrated how difficult these partnerships are to enact, many schools of education are moving toward preparing all of their prospective teachers in such settings both because they can more systematically prepare prospective teachers to learn to teach in professional learning communities and because such work is a key to changing schools so that they become more productive environments for the learning of all students and teachers.

RESISTING PRESSURES TO WATER DOWN PREPARATION

Although heroic work is going on to transform teacher education and a growing number of powerful programs are being created, more than 30 states continue to allow teachers to enter teaching on emergency permits or waivers with little or no teacher education at all. In addition, more than 40 states have created alternative pathways to teaching—some of which are high-

quality postbaccalaureate routes and others of which are truncated programs that short-circuit essential elements of teacher learning. Many candidates who enter through emergency or alternative routes do not meet even minimal standards when they start teaching, and researchers have found that pressures to get them certified in states where thousands are hired annually can undermine the quality of preparation they ultimately receive. In some states, such as California and Texas, unlicensed entrants have numbered in the tens of thousands annually, hired to teach to the least advantaged students in low-income and minority schools. Even when these candidates are required to make some progress toward a license each year by taking courses for teaching while they teach, the quality of preparation they receive is undermined (Shields et al., 2001).

Institutions that train these emergency hires cannot offer the kinds of tightly integrated programs described here in which candidates study concepts and implement them with guidance in supported clinical settings. They are forced to offer fragmented courses on nights and weekends to candidates who may never have seen good teaching and who have little support in the schools where they work. The part-time instructors who are often hired to teach these courses are not part of a faculty-wide conversation about preparation, nor do they have a sense of a coherent program into which their efforts might fit.

When these candidates work full-time, colleges often water down their training to minimize readings and homework and focus on survival needs such as classroom discipline rather than curriculum and teaching methods. Candidates often demand attention to classroom management, without realizing that their lack of knowledge of curriculum and instruction cause many of the classroom difficulties they face (Shields et al., 2001). When they skip student teaching, colleges cannot weave good models of teaching into courses that would connect theory and practice, and candidates can only imagine what successful practice might look like.

Studies observe that both recruits and employers typically find the outcomes of this kind of training less satisfactory than those of a more coherent experience that includes supervised clinical training along with more thoughtfully organized course work (California State University, 2002; Shields et al., 2001), and many programs that try to train candidates while they teach have had extremely high attrition rates (Darling-Hammond, 2001). If medical schools were asked to develop programs for already-practicing doctors or nurses that would eliminate or truncate some courses and skip clinical rotations and the internship entirely, they would refuse to do so. However, universities participate in this kind of training for teachers for many reasons:

- They feel an obligation to help teachers who have found their way into the classroom without proper training;
- They are required to do so by laws governing state-funded programs or encouraged to do so by federal, state, or local incentives to construct alternative pathways that train teachers while they teach;
- They believe, like many policy makers, that this is the only way to meet persistent supply problems, especially in poor urban and rural districts; and
- Such recruits are a source of money and may absorb little in the way of services for the tuition they pay.

In states where large numbers of individuals enter teaching in this way, most programs are pressured to bend to this mode of entry, gradually eroding the quality of stronger programs that have been developed. Programs experience pressures to reduce the amount of time devoted to preparing teachers, to admit candidates on emergency licenses who then require a fragmented program without student teaching, and to short-circuit clinical requirements that would allow candidates to learn to practice under supervision.

The irony is that when institutions are complicit in cobbling together weak programs, even when they do so for the most helpful reasons—and when they do not speak out against emergency hiring—the teacher education enterprise as a whole is blamed for any and all teachers who are ill prepared, including those who entered teaching without preparation.

Few realize that rapidly producing poorly prepared teachers for this system is a major part of the problem rather than a solution. The current practice is like pouring water into a bucket with a gaping hole at the bottom. Aside from true shortage fields such as mathematics and physical science, the nation actually produces more newly credentialed teachers each year than it hires. Most of the real problems that appear as shortages have to do with teacher distribution and retention, not production. In addition to unequal funding and salary schedules that hamper poor urban and rural districts, many districts that hire underprepared teachers have cumbersome and dysfunctional hiring systems or prioritize the hiring of unqualified teachers because such teachers cost less than qualified teachers who have applied (Darling-Hammond & Sykes, 2003).

In these districts, teacher turnover is even higher than the already high rate elsewhere. Nationally, about one third of beginning teachers leave within 5 years, and the proportions are higher for teachers who enter with less preparation. For example, teachers who receive student teaching are twice as likely to stay in teaching after a year, and those who receive the kinds of preparation that include learning theory and child development are even more likely to stay in teaching (Henke, Chen, & Geis, 2000; Luczak, 2004; National Commission on Teaching and America's Future, 2003). The costs of this teacher attrition are enormous. One recent study estimates that depending on the cost model used, districts spend between US\$8,000 and US\$48,000 in costs for hiring, placement, induction, separation, and replacement for each beginning teacher who leaves (Benner, 2000). On a national scale, it is clear that teacher attrition costs billions annually that could more productively be spent on preparing teachers and supporting them in the classroom.

A number of states and districts have filled all of their classrooms with qualified teachers by streamlining hiring, investing in stronger teacher preparation and induction, and equalizing salaries (Darling-Hammond & Sykes, 2003). They have ended the practice of hiring unqualified teachers by increasing incentives to teach

rather than lowering standards. As Gideonse (1993) has noted in an analysis of teacher education policy,

As long as school systems are permitted to hire under-prepared teachers through the mechanism of emergency certificates and their equivalent, teacher preparation institutions and the faculty in them will have reduced incentives to maintain standards by preventing the advancement of the marginally qualified to licensure. All the hype in the world about raised standards and performance-based licensure is meaningless absent a real incentive working on school districts to *recruit the qualified* through salary and improved conditions of practice, rather than being allowed to *redefine the available as qualified*. (p. 404)

Whereas many countries fully subsidize an extensive program of teacher education for all candidates, the amount of preparation secured by teachers in the United States is left substantially to what they can individually afford and what programs are willing and able to offer given the resources of their respective institutions. Although many U.S. institutions are intensifying their programs to prepare more effective teachers, they lack the systemic policy supports for candidate subsidies and programmatic funding that their counterparts in other countries enjoy. And in states that have not developed induction supports, programs are continually called on to increase the production of new recruits who are then squandered when they land in an unsupportive system that treats them as utterly dispensable.

In every occupation that has become a profession during the 20th century, the strengthening of preparation was tied to a resolve to end the practice of allowing untrained individuals to practice. Teaching is currently where medicine was in 1910, when doctors could be trained in programs ranging from 3 weeks of training featuring memorized lists of symptoms and cures to Johns Hopkins University graduate school's preparing doctors in the sciences of medicine and in clinical practice in the newly invented teaching hospital.

In his introduction to the Flexner Report, Henry Pritchett (Flexner & Pritchett, 1910), president of the Carnegie Foundation for the Advancement of Teaching, noted that although there was a growing science of medicine, most

doctors did not get access to this knowledge because of the great unevenness in the medical training they received. Pritchett observed that

very seldom, under existing conditions, does a patient receive the best aid which it is possible to give him in the present state of medicine, . . . [because] a vast army of men is admitted to the practice of medicine who are untrained in sciences fundamental to the profession and quite without a sufficient experience with disease. (p. x)

He attributed this problem to the failure of many universities to incorporate advances in medical education into their curricula.

As in teaching today, there were those who argued against the professionalization of medicine and who felt that medical practice could best be learned by following another doctor around in a buggy. Medical education was transformed as the stronger programs Flexner (Flexner & Pritchett, 1910) identified became the model incorporated by accrediting bodies and as all candidates were required to complete such programs to practice. In a similar manner, improving teaching and teacher education in the United States depends on not only strengthening individual programs but also addressing the policies needed to strengthen the teacher education enterprise as a whole.

Although teacher education is only one component of what is needed to enable high-quality teaching, it is essential to the success of all the other reforms urged on schools. To advance knowledge about teaching, to spread good practice, and to enhance equity for children, thus, it is essential that teacher educators and policy makers seek strong preparation for teachers that is universally available, rather than a rare occurrence that is available only to a lucky few.

NOTE

1. The National Academy of Education Committee members included James Banks, Joan Baratz-Snowden, David Berliner, John Bransford, Marilyn Cochran-Smith, James Comer, Linda Darling-Hammond, Sharon Derry, Emily Feistritzer, Edmund Gordon, Pamela Grossman, Cris Gutierrez, Frances Degan Horowitz, Evelyn Jenkins-Gunn, Carol Lee, Lucy Matos, Luis Moll, Arturo Pacheco, Anna Richert, Kathy Rosebrock, Frances Rust, Alan Schoenfeld, Lorrie Shepard, Lee Shulman, Catherine Snow, Guadalupe Valdes, and Kenneth Zeichner.

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