Responding to our critics: from crisis to opportunity in research on teacher education

Author abstract
This article uses Andrew Abbott's concept of jurisdictional challenge to analyze the current challenges facing university-based teacher educators. The author suggests that teacher educators are dangerously close to losing jurisdiction over two key professional tasks--the preparation of new professionals and the production of academic knowledge for the profession. The author then argues for the need for researchers in teacher education to respond to such jurisdictional challenges by focusing on pressing policy issues regarding the preparation of teachers and by strengthening the quality of research.

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A reorganization of teacher training and certification
requirements along the lines here outlined
would ... end the preposterous overemphasis upon
pedagogy that produces teachers who can talk
glibly about how to teach, but who know too little
about any given subject to teach it satisfactorily.
(Bestor, 1953/1985, p. 136)

Barriers to entry are too high. Confusing and cumbersome
procedures discourage many talented
would-be teachers from entering the classroom.
(The Teaching Commission, 2006)

The most insidious hurdles involve lengthy training
in pedagogy. Although some policymakers and
parents view "certified" teachers as synonymous
with qualified teachers, being certified generally
means little more than having endured state-approved
training at a school of education. Yet
there's little evidence that this leads to effective
teaching. (Finn, 2001, p. 138)

Teacher educators do not offer programs based on
data. Like schoolfolk, their programs reflect custom,
tradition and the convenience of faculty. We in teacher
education quack about the need for making policy
based on evidence but we act in ways which are not
only baseless but frequently in contradiction to the
evidence. (Haberman, 2004)

And now I come to a red-hot question: How about
those terrible methods courses, which waste a
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student's time? (Conant, 1963, p. 137)

Teacher education right now is the Dodge City of
education: unruly and chaotic. (Levine, 2006)
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Given comments like these, it's hard not to feel defensive as a teacher educator these days. Teacher educators are being blamed for the burdensome barriers of certification, even as states have created these barriers in the service of raising standards for prospective teachers. Courses in pedagogy are criticized as largely irrelevant compared to classes in the subject matter, consisting more of seat time than substance, even as teacher educators have struggled to incorporate more subject-matter learning into ever-briefer programs. A closer look at these critiques, however, reveals that these criticisms are not new. Some were written 50 years ago and others in the past year. Critics on the right wrote some of them and critics on the left, others. What has changed, perhaps, is the volume of these critiques. In his vice presidential address, Ken Zeichner (1999) claimed,

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There is no more important responsibility for a
school, college, department or faculty of education
than to do the best job that it possibly can in preparing
teachers to teach in the schools of our nation and
to support the learning of teachers throughout their
careers. If we are not prepared to take this responsibility
more seriously and do all that we can to have
the best possible teacher education programs, then
we should let someone else do the job. (p. 13)
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Zeichner was more prescient than he may have realized, because today many would like to take the job away from university-based teacher educators. Increasingly, school districts from Los Angeles to Boston are taking over the task of preparing teachers for their schools. My purpose in this article is to suggest a way of thinking about how teacher educators might shift from the defensive posture of defending the status quo to a more productive response.

A JURISDICTIONAL CHALLENGE TO UNIVERSITY-BASED TEACHER EDUCATION

University-based teacher educators, and the profession of education more broadly, are facing a sharp attack on their ability and their right to control the preparation of teachers. Although these attacks are not new, as the introductory quotations illustrate, the challenges to our professional jurisdiction have intensified during the past two decades. University-based teacher educators are dangerously close to losing their responsibility for overseeing the preparation of new teachers.

To understand this challenge, I borrow the concept of jurisdictional dispute from the sociologist Andrew Abbott. As Abbott (1988) elegantly illustrated in his book The System of Professions, professions can best be understood as interacting systems, in which professionals constantly compete for jurisdiction over professional work. In the book, he provides an extended example of how the fields of clergy, psychiatry, neurology, clinical psychology, and social work all vied for the right to help people manage their personal problems, particularly the diffuse set of problems associated with American's "general nervousness." First, the clergy established their role in helping their parishioners manage marital and emotional problems but lost their jurisdiction to neurologists who, according to Abbott, were not necessarily better at treating cases of nerves but possessed more esoteric and complicated names for classifying various maladies, including neurasthenia, psychathenia, milkmaid's

spasm, trifacial neuralgia, and ovarian neuralgia. In their attempt to exert control of their profession, however, neurologists admitted very few students into a few elite schools; soon the number of patients far exceeded the ability of the neurologists to treat them all. Even more problematic from the standpoint of professional jurisdiction, the treatments that neurologists prescribed for their patients were not especially effective. However neurologists treated milkmaid's spasm once they named it, the milkmaids did not seem to improve. This lack of effectiveness opened the door for psychiatrists, who effectively won jurisdiction over the problem of general nervousness. Psychiatrists proclaimed new diagnoses, classifications, and treatments but also failed to show that their treatments were effective. Soon the psychiatrists, like the neurologists and clergy before them, proved unable to resist the challenges of another profession--clinical psychology--to treat patients through psychotherapy, although psychiatrists did manage to hold onto their singular right to prescribe drugs. With the current theories of biological origins of depression and other human problems providing a medical formulation of the problem, psychiatry and medicine in general seem poised to challenge the territory that they ceded to psychologists. In this sense, jurisdictional disputes among professions are a bit like negotiations in the Middle East; professions gain some ground, then lose some, all the time trying to negotiate more stable, if not permanent, borders.

Abbott argues that in order for a profession to maintain its professional jurisdiction, professionals in a field must demonstrate their effectiveness in three areas of professional practice: first, the ability to diagnosis or assess the client's situation; second, the ability to reason and infer, using professional knowledge, about a client's problem; and third, the ability effectively to treat the problem or to take action on the client's behalf. For a teacher, these areas might translate into the ability to draw on professional knowledge to assess an individual student's or a class of students' educational needs, the ability to reason about both the particular student or class when assessments are not clear-cut, as they so seldom are in education, and the ability to design and enact instruction in ways that supports student learning--the "treatment," to use Abbott's language.

As Abbott suggests, these three aspects of practice are not necessarily best understood as a linear sequence. Sometimes a doctor treats in order to diagnose. Diagnosing food allergies is a good example--to diagnose a food allergy, the doctor must first treat the patient as though she has one; if the treatment does not work, the doctor will consider other diagnostic possibilities. The need for professional judgment generally happens when either the diagnosis is complex or a prescribed treatment is ineffective; if all treatments follow automatically from the initial diagnosis, there is less demand for professional judgment, which in turn can weaken a profession. Abbott claims that a profession becomes vulnerable to jurisdictional challenges when diagnoses are so vague or general as to be unhelpful (general nervousness might serve as an excellent example!), when the public does not see the treatments offered by a profession as effective, and when both diagnoses and treatments are difficult to assess.

Abbott goes on to argue that academic knowledge, another hallmark of a profession, supports practitioners through providing new diagnoses, new forms of assessment or treatment, and knowledge that can inform the inferences and professional judgment of practitioners. If the academic knowledge base fails to provide knowledge useful for practitioners, or lacks credibility with the larger public, the profession is again more open to jurisdictional challenges.

Finally, professions generally take responsibility for the preparation of newcomers to the professions. Yet, as Abbott claims, "The instructional system, with its hyper-rationalization of professional knowledge provides yet another ground for professional attack" (p. 57). This hyper-rationalization of knowledge means that what we teach in the university may seem quite distant from the immediate problems of practitioners, resulting in the infamous gap between theory and practice. This gap, although familiar to all of us who work in teacher education, haunts most professional preparation programs as well, whether one is talking about law or the clergy, medicine or social work. Despite this vulnerability, Abbott goes on to say, "Few dominant professions lose the ability to instruct themselves" (p. 57).

If teaching is indeed to define itself as a profession, then university-based teacher educators are responsible both for the production of academic knowledge that supports professional practice and for preparing future professionals. I want to suggest that framing the current attacks on teacher education as, in part, a form of jurisdictional challenge over the task of preparing teachers, may help us understand how best to respond to our critics. It is always worth remembering that many other professions face similar challenges: that the challenges facing teacher educators are not unique but are part of a larger narrative of the development of professions. Thus, studying how other professions have weathered or succumbed to jurisdictional challenges can only help us better understand our own situation and how we might best meet this challenge. (1)

There are at least three areas in which university-based teacher educators are vulnerable and that demand immediate attention. The first and perhaps most obvious is the need to demonstrate that, in fact, how teachers are prepared does make a difference and that it makes a difference to the outcomes that the public cares most about--student learning. The second, closely related to the first, is the need to improve the quality of research in teacher education, so that it can inform practitioners and policy makers as well as improving the public's perception of research in this area. Third, schools of education need to strengthen substantially the preparation of the future generation of researchers and teacher educators, so that they are able both to prepare future teachers and to produce the academic knowledge that can inform the practice of both teaching and teacher education. In this article, I will address the first two areas.

THE EFFECTIVENESS OF TEACHER EDUCATION: WHAT DO WE KNOW?

As Abbott has demonstrated, a profession is most vulnerable to attack when serious questions can be leveled at the perceived effectiveness of its practice. (2) Starting as far back as the 1950s, teacher education has been criticized as failing to prepare effective teachers. In books published from 1949 to 1963--including the titles Educational Wastelands (Bestor, 1953/1985), And Madly Teach (Smith, 1949), Quackery in the Public Schools (Lynd, 1977), The Education of American Teachers (Conant, 1963), and The Miseducation of American Teachers (Koerner, 1963) through more current titles such as Ed School Follies (Kramer, 1991) and Educating School Teachers (Levine, 2006)--critics accuse teacher educators for failing to produce effective teachers.

Many of the current critiques come from the federal government. The Title II report, Meeting the Highly Qualified Teachers Challenge (U.S. Department of Education, 2003), argues that because there is little evidence that professional coursework or supervised practice makes a difference to the quality of teaching, "states will need to streamline their certification system to focus on the few things that really matter: verbal ability, content knowledge, and, as a safety precaution, a background check of new teachers" (p. 40). Such a proposal, if enacted, would essentially dismantle professional education for teachers and grant responsibility for on-the-job training to schools and districts. The newly established American Board for Certification of Teacher Excellence (ABCTE) has essentially taken up this challenge, proposing to certify teachers on the basis of a college major, passing scores on tests of subject-matter knowledge and professional knowledge, and a background check. Using the same processes as those used by the National Board for Professional Teaching Standards (NBPTS), the National Council of Teachers of Mathematics (NCTM), and Interstate New Teachers Assessment and Support Consortium (INTASC), among others, ABCTE has created standards--written and then vetted by their own experts--and commissioned tests that are aligned with those standards.

Perhaps streamlining entry into teaching is a reasonable response to teacher shortages and the achievement gap, as critics claim, although given the challenges facing public school teachers, particularly in high-poverty, urban schools, one might think that teachers would need more preparation--not less. Critics point to Teach for America (TFA) as a prime example of the success of such streamlined entry into teaching, ignoring the

inconvenient fact that TFA is essentially a very small supplier of teachers to our nation's schools and that we will never be able to recruit all of the teachers we need from the ranks of elite college students.

But what is most troubling is that, as researchers and practitioners in the field of teacher education, we seem ill prepared to respond to critics who question the value of professional education for teachers with evidence of our effectiveness. The designers of ABCTE have, in effect, co-opted the process and even the language of the standards-based movements of subject-matter organizations, such as NCATE and NBPTS to develop their approach. We cannot, thus, disagree in principle with how they reached consensus on what teachers need to know and to be able to do or how they developed an assessment plan aligned with those standards. Where we need to disagree--and to be able to mount a strong critique--concerns their claims of what it takes both to teach and to prepare teachers. (3) Although some of that argument will always be driven by normative assumptions, professional judgment, and ethical commitments, our critique would be substantially enhanced as well as more professionally responsible and publicly credible, if we had a sounder research base with which to refute their claims or support our own. The lack of a strong research base on teacher education undermines our professional credibility. As Abbott (1988) has argued, "The ability of a profession to sustain its jurisdiction lies partly in the power and prestige of its academic knowledge" (pp. 53-54); research in our field currently lacks both.

In part, our current predicament reflects the turn in scholarship in teacher education, a turn nicely summarized by Ken Zeichner in his 1998 Vice Presidential Address to Division K (Zeichner, 1999). Starting roughly in the mid-1980s, teacher educators followed the qualitative turn in social science research and largely turned their attention to their own practices inside of teacher-education classrooms, relying increasingly on small qualitative studies. Following the cognitive revolution, teacher-education research focused largely on the outcomes of teacher beliefs, knowledge, and reflection rather than on the impact on instructional practice or student learning. This line of research has resulted in a host of studies that detail the practices within individual teacher education classrooms, as well as case studies of exemplary practices and programs (e.g., Cochran-Smith & Zeichner, 2005). We have learned a tremendous amount from this work about the inner workings of teacher education and the difficulties of overcoming deeply held beliefs about teaching, students, and subject matter. However, as a research community, we have spent relatively little sustained effort trying to determine how teacher preparation, of any kind, affects either teachers' classroom practices or their influence on student learning, outcomes that are arguably those that the public--including parents and policy makers alike--care about most.

We can argue, and we do, that the legal profession has no proof that law schools produce better lawyers; in fact, people have argued that formal legal education does little to prepare students for the actual practice of law, leaving the practical education to on-the-job learning in law firms and courtrooms (Sullivan, Colby, Wegner, Bond, & Shulman, 2007). And even though reports going back a number of years have argued that the third year of law school is largely unnecessary, no one is leading the charge to dismantle law schools. We can also argue that the educators of doctors and architects, and even engineers, are not asked for proof that their programs make a difference. It takes 4 or 5 years beyond a B.A. to prepare a clinical psychologist or a rabbi, but there are few outcries for streamlined entry into these fields. But such cross-professional comparisons will not help us, in this instance, when the public's perception is that as university-based teacher educators, we are not doing our jobs, as indicated by the constant media focus on "failing" schools. As Abbott (1988) has demonstrated, when a profession is perceived as ineffective, it leaves itself open to jurisdictional challenges and is more likely to be pressed to show evidence of effectiveness.

To respond effectively to critics, university-based teacher educators must be able to provide credible evidence of the effectiveness of their practice in preparing teachers. As Abbott (1988) argued, "The development of new knowledge or skill may consolidate jurisdictional hold" over tasks of a profession (p. 96). Ironically, teacher educators spent enormous effort in the 1990s reforming teacher-education programs to be more effective, in response to the spate of reports issued in the mid-1980s aimed at strengthening teacher preparation (Carnegie

Commission on Education and the Economy, 1986; Goodlad, 1990; Holmes Group, 1985). Teacher education in 2007 is quite different in many ways than the teacher education of the 1960s. Many of the general methods courses of the past, those that Conant depicted as a waste of time, have been eliminated, replaced by more intensive classes in the teaching of specific subject matters. Students spend more time in schools in a variety of field experiences that range from what Dewey might term "laboratory experiences" to more apprenticeship-like experiences (cf. Clift, 2005). Programs have tried to create a variety of partnerships with the schools in which they place teachers, from full-blown professional development schools to partnerships that are more loosely defined. And new pedagogical approaches for teacher education have taken root, including the use of case methods, portfolios, and forms of teacher inquiry (cf. Grossman, 2005). Teacher educators have also tackled the issue of social justice, trying to ensure that new teachers are prepared to teach students who have been traditionally underserved by education--including children living in poverty and students of color (e.g., McDonald, 2007; Michelli & Keiser, 2005).

Yet despite this serious and sustained effort at reforming teacher education programs, we still know very little about what characteristics of teacher education make the most difference in preparing teachers to teach well, particularly in high-poverty schools with students who most need strong teachers. We cannot make claims with any certainty, for example, about what kinds of field experiences, in general, are most powerful in preparing teachers to teach reading or math in high-poverty schools. We do not know whether prospective teachers are better prepared to teach students from different ethnic and racial groups if such issues are addressed in a separate course in multicultural education or whether these issues are infused across the program. Nor do we know what kinds of field experiences best prepare teachers to teach in high-poverty urban schools. We do not yet know how best to prepare teachers to teach English-language learners across various contexts or how best to prepare teachers for the challenges of teaching in high-poverty schools. We have plenty of strong opinions about all these issues, to be sure and lots of good hypotheses but very little solid empirical evidence that could help inform how we prepare future teachers or that could refute the criticism of skeptics who believe such courses are simply barriers to certification erected by the education monopoly.

I do not mean to suggest that we have not been investigating these issues. Each year the annual meetings of the American Educational Research Association (AERA) and the American Association of Colleges of Teacher Education (AACTE) are filled with presentations on what constitutes a good field experience, ways to prepare teachers to teach reading/language arts or history/social studies, or how best to prepare people for teaching for social justice in poor, urban schools. But much of this work is based on a single researcher's, or a small group of researchers', investigation of their own program. Often neither the context of the program nor the methods of data collection and analysis are described in enough detail to understand either the program or the findings. Even more problematic, most of these presentations never make it into refereed articles, a process through which authors would be pressed to articulate their analytic procedures and possibly refine their claims and which makes the resulting research available to others for further critique and response. Very little of this research actually follows graduates of teacher education into the classroom. Finally, the field is just beginning to tackle the methodologically complex problem of how to document the links among what happens in teacher education, how graduates of teacher education teach in schools, and how their students learn.

As the authors of a number of current efforts to synthesize research in teacher education agree (e.g., Cochran-Smith & Zeichner, 2005; Wilson, Floden, & Ferrini-Mundy, 2001), the field of research in teacher education is still a long way from being able to answer questions such as these with any confidence. Yet knowing the answers to such questions would inform our own work as teacher educators, as well as informing policy makers, which leads to the second area in which we are vulnerable to jurisdictional challenges--the credibility of research, or academic knowledge, in teacher education.

QUALITY OF ACADEMIC KNOWLEDGE IN TEACHER EDUCATION

A veritable flood of reports synthesizing research in teacher education has recently emerged. The flood began with a report sponsored by the Office of Educational Research and Improvement and written by Suzanne Wilson, Bob Floden, and Joan Ferrini-Mundy (2001). This report surveyed the available research evidence regarding five questions: the kinds of subject-matter preparation that teachers need, the kinds of pedagogical preparation that teachers need, the character and amount of clinical experiences needed to prepare teachers, the effectiveness of policies and strategies used to improve teacher education, and the components and characteristics of high-quality alternative certification. As part of this process, they established a set of criteria for inclusion of research; the criteria included such things as whether the research had been reported in a peer-reviewed journal in the past two decades, whether the research could be considered empirical, and the rigorousness of the research. During this same time period, Marilyn Cochran-Smith and Ken Zeichner headed up the AERA Panel on Research and Teacher Education, in which chapter authors again synthesized the existing research around a somewhat broader set of questions about teacher education. (4) The panel included research on subject-matter preparation in liberal arts courses, the effects of methods courses and field experiences, the preparation of teachers to teach diverse learners and students in special education, the pedagogy of teacher education, research on certification and accountability, and research on recruitment and retention. In addition to this effort, the Center for Research on Equity, Diversity, and Excellence sponsored a research synthesis on teacher preparation focused specifically on preparing teachers to teach learners who are linguistically, racially, and culturally diverse and a committee of the National Academy of Education outlined principles that underlie the curriculum for teacher education, principles based, in part, on the research evidence (Darling-Hammond & Bransford, 2005).

As this account suggests, there is certainly no shortage of efforts to learn what the research says, nor is there a shortage of presentations, articles, and chapters describing research on teacher education. But there is a different kind of shortage: a shortage of well-designed and well-executed studies that look at similar outcomes using procedures for data collection and data analysis that are clear and credible; a shortage of programmatic research designed to provide more than local knowledge of particular programs; a shortage of carefully designed comparative studies that try to tease out the effects of programs from the entering characteristics of the prospective teachers or the specific effects of particular pedagogical approaches.

As one of the authors for the AERA Panel on Research and Teacher Education, I confronted many of the problems that Suzanne Wilson and others had faced before me. Although there were literally hundreds of conference presentations on topics related to the pedagogy of teacher education, relatively few of these had been published in peer-reviewed journals. Of those submitted to peer-reviewed journals, not all met the criteria established by the panel. In some instances, the procedures for collecting and analyzing data were not clear, making it difficult to follow the inferential chain from evidence to warranted conclusion. In other instances, researchers conducted surveys but told readers little about the response rate or potential differences between those who responded and those who did not.

We have a problem. We are producing too little research that is credible to the larger research community and to policy makers. We lack studies that enable us to make strong claims about the effectiveness of our programs. As Abbott has suggested, this makes us vulnerable in responding to jurisdictional challenges.

As members of the teacher-education research community, we are part of the problem and must be part of the solution. Our professional organizations, including AERA and AACTE, are home to the journal editors who establish and monitor criteria for the quality of published research. These organizations are the home of the reviewers for these journals, who play a critical role in maintaining the quality of published research by adhering to rigorous criteria. And, perhaps most important, these organizations are the home of researchers in this area,

the individuals who propose and conduct studies in the area of teacher education and who also prepare future researchers in this field. So we can do something about the quality of research on teacher education, as one way of addressing attacks on the credibility of research in this area. (4)

What has become apparent to those of us involved in these various research syntheses is that we need more programmatic research on teacher education, research that focuses on a critical set of questions, that over time, and through a variety of approaches, tries to provide better answers. The field needs more research that builds on its own findings, that uses common instruments and outcome measures that make it possible to aggregate findings across studies. We need clearly articulated criteria for high-quality studies across the wide range of research traditions in our field--from qualitative research to quasi-experimental research, from correlational studies to self-study. And we need to apply those criteria fairly but rigorously in our work as reviewers. We need more conversations about our methods and our warrants, not just about our findings. We need to work together on the tough questions of our field, such as how to prepare teachers who can increase equity of opportunity and achievement for African American and Latino/a students, among others. Also, we need to be appropriately skeptical of our own research findings, especially when they confirm our strongly held beliefs. We need to reestablish a culture of critique, in which the true mark of collegiality is not high praise but hard questions. We need to engage with our critics and learn from their critiques, not necessarily defend the status quo. As researchers, we must be willing to entertain the possibility that the programs we have created are not necessarily the best way to prepare teachers for high-need schools and to learn from the remarkable array of alternatives that currently exists for prospective teachers.

This is not an argument for a particular form of research or against the kind of qualitative studies that have characterized our field. Rather, it is a plea to hold ourselves more accountable for the quality of our research across different methodological approaches and to develop a more programmatic vision of research in teacher education, one that tackles more seriously the question of outcomes through a variety of approaches.

So what would it take to get us from where we are now to where we need to be? What would programmatic research in teacher education look like? This is not a trivial question because the field has relatively few examples of sustained programmatic research. One of the few examples of programmatic research in the pedagogy of teacher education, for example, was research on "microteaching" (cf. MacLeod, 1987). It may have been atheoretical and it may have focused narrowly on a set of teacher behaviors, but research in this area continued to ask questions about both the process and outcomes of microteaching in a sustained and reasonably systematic way. Research on teacher labor markets is another example of programmatic research, in which researchers over time have begun to generate a relatively stable set of findings about characteristics of those who go into teaching, those who stay in the classroom, and those who leave. (cf. Lankford, Loeb, & Wyckoff, 2002; Murnane, Singer, Willett, Kemple, & Olsen, 1988; for a comprehensive review of this literature, see Zumwalt & Craig, 2005).

One example of programmatic research in teacher education is the set of studies conducted by the National Center for Research on Teacher Learning (NCRTL, 1991) at Michigan State on teaching and learning to teach. These studies focused on a set of questions about issues of teacher knowledge and what people learned about teaching subject matter in a variety of teacher-education contexts. The large core study included 12 different teacher-education programs, including two alternative routes, as well as an array of different structures and institutional contexts, so the design allowed for careful comparative analysis of programmatic features. The initial work focused particularly on two content areas--math and writing--looking at teachers' knowledge in these subjects as well as their understanding of how to teach these subjects and how both were influenced by their teacher-education programs. The NCRTL researchers used a variety of methodological approaches, from

surveys to interviews to observations, and a strategic set of satellite studies that helped to flesh out their findings. Researchers documented their methods and made their instruments available for other researchers (Kennedy, Ball, & McDiarmid, 1993).

From this study, we learned that structural features matter less than the content and orientation of a program, that a major in a subject matter does not necessarily give people the knowledge that they need for teaching, and that although mentors may help new teachers adjust to schools, there is no evidence that they necessarily help novices become more skillful teachers (NCRTL, 1991).

Although we learned quite a bit from the NCRTUs research, there is also much that we did not learn. We did not learn, for example, where graduates chose to teach or how long they stayed in teaching; the study did not track how what these graduates knew, or did not know, played out in their classroom practices over time or how what they learned, or did not learn, affected their continued development and learning. Finally, the NCRTL did not address how what these graduates of teacher education learned influenced, in turn, the learning of their students.

To emphasize that the problems articulated here are problems of the field as a whole, rather than of individual researchers, I want to suggest that my own line of work in teacher education has many of the same limitations of the field in general. I began my career as an educational researcher with the very questions that consume me today. What kind of difference, if any, does formal teacher education make? What value does a strong teacher education program add when teachers already possess a strong background in their subject area and a willingness to teach? What do teachers learn in their teacher education programs, and how do they draw on this learning, or not, when they begin teaching? Because I was very much a product of my times--the mid1980s and the beginning of the qualitative turn in educational research--I conducted a set of six detailed case studies (Grossman, 1990). The use of case studies seemed highly appropriate, as my aim was both to develop the then-brand-new construct of pedagogical content knowledge and to explore a potential relationship between pedagogical content knowledge and content-area methods classes.

My comparison of teachers with and without teacher education demonstrated differences in how they thought about teaching English as well as the actual practices that they used in their classrooms. Those with teacher education planned more with their students in mind, drawing on both student interests and disciplinary content to design instruction. They saw part of their job as helping to motivate students to learn the material, whereas those without teacher education saw motivating students as not necessarily part of their work (see Grossman, 1990, for complete description of findings). Although I found important differences among these two sets of teachers, I did not take the next step to develop more uniform measures for assessing teachers' pedagogical content knowledge, using what I and others had learned, to see whether my findings held up across a broader sample of teachers. Nor did I look at how the differences I documented among these teachers' beliefs and practices ultimately affected their students' learning, as measured in any variety of ways, from classroom discussions of literature to student writing.

And I was not alone. One of the pieces of intellectual work left undone from the generally strong case-study research on teacher knowledge in the 1980s and 1990s was figuring out how to go from the use of tasks and semi-structured interviews characteristic of this research to other measures of teacher knowledge that could be used in larger scale projects. This was one of the questions with which the National Center for Research on Teacher Learning (NCRTL) also struggled. For example, researchers at this center designed a few items in elementary mathematics that could be used on surveys and that attempted to measure what teachers knew about fractions. The measures for looking at teachers' knowledge in secondary English, however, never developed beyond the initial lengthy tasks (Kennedy et al., 1993). Also, in relatively few instances did

researchers work on the validity and reliability of these items. By the time I began my next substantial study of teacher education, a longitudinal study that followed graduates of teacher education from their final year of teacher education into their first 3 years of teaching (Grossman et al., 2000), our methods for looking at teacher learning still relied heavily on the same approaches that I had used in my previous work--interviews, classroom observations, and tasks of various kinds. The intervening decade had provided me with relatively few new tools for investigating teacher learning. Nor did I take on the task myself of developing and field testing such tools as part of my own research.

Part of what our field needs to do is to create the kinds of measures of teacher knowledge and teacher learning that would help us to examine the outcomes of teacher education in a systematic way. This involves, in part, the slow, steady, and unglamorous work of developing items and assessing their reliability and validity for use in larger scale studies--the kind of work that we have ignored for too long. Heather Hill, Deborah Ball, Brian Rowan, and their collaborators in the Study of Instructional Improvement at the University of Michigan, have begun to do this work for measures of teacher knowledge in elementary reading and math (e.g., Hill & Ball, 2004). They have developed a fairly large set of items (some of them used in earlier research projects), gone through the process of field-testing and validating these measures, and are now using them to look at relationships between teacher knowledge and student achievement (Hill, Rowan, & Ball, 2005). Instead of having a single item to measure teachers' content and pedagogical-content knowledge, Hill and her colleagues are developing multiple items that allow them to create scales for teacher knowledge in particular content domains. Having a bank of such items then makes it possible for other researchers to design studies that draw on their work to assess teacher knowledge and that over time will yield findings that may be comparable because they have been derived from similar measures. Similar work could be done in assessing student learning through the use of work samples (Schalock, Schalock, & Girod, 1997) or student portfolios. Again, I am not arguing for a unidimensional approach to what counts as evidence of student learning but, rather, for the need to develop common tools and methodologies for tackling the important question of the relationship between teacher and student learning.

Our longitudinal study of learning to teach language arts, like so much of the research in teacher education, focused on graduates of a single teacher education program. Although such a focus enables us to amass detailed information about the program, it does not allow us to disentangle the effects of self-selection into a particular program. When I asked a local superintendent why he didn't hire more of our graduates, given what I saw as their strong preparation in areas about which he cared, he turned around and asked whether it was really our program that made a difference or just the fact that we admitted strong students to begin with. Our study was unable to answer his question because of this problem of selection bias. How do we disentangle the influences of a program from the characteristics of people who choose to enter that particular program? (5) Unlike my previous study, this study was designed to trace the longer term influence of teacher education. We found, for example, that graduates were more likely to draw on tools and practices from their programs in their second and third years of teaching than in their first, an important methodological finding for research in this area. However, we did not try to make the link between teachers' practices and students' learning, the logical next step in assessing the impact of teacher education.

My latest work continues to address a similar set of questions about the effects of teacher education but this time from a very different perspective. Drawing on what we have learned from the in-depth case studies of teacher education conducted during the past decade, my colleagues and I are looking across a number of different pathways into teaching in one city--New York City--and how characteristics of these pathways affect a variety of outcomes, including whether and where graduates teach, how long they stay in teaching, and their contribution to student achievement in reading and math (cf. Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006). This work examines a number of different programs and pathways into teaching, including both more traditional university-based programs and alternate routes such as the NYC Teaching Fellows, and compares characteristics of preparation in five areas: aspects of program structure; preparation to teach specific subject

matters; the nature of field experiences; preparation for teaching ethnically, racially, and linguistically diverse students; and preparation in learning and development. This work lacks much of the fine-grained detailed descriptions of teacher education characteristic of case-study research but will begin to help us describe, on a larger scale, the relationship between features of teacher education and important outcomes for teachers and students. At the same time, the study will provide information to the individual programs about their graduates--how they perceive their preparation, where they teach and whether they remain in teaching, their impact on student achievement--data that can support local deliberations about how to strengthen teacher preparation.

THE RESEARCH THAT WE NEED

We will always need a variety of studies that draw on different traditions and different disciplinary frameworks. We need access to richly detailed, in-depth cases of phenomena that help us to understand the nuances of teacher education, to ask new questions, and to see an all-too-familiar terrain differently. But as a field, we may have swung too far toward the search for particularities. Our field needs to regain a critical balance between carefully designed, small, in-depth qualitative studies and larger scale research projects that intentionally take advantage of different methodologies. Larger scale studies may lose some of the nuanced descriptions of teacher education--in fact, it is almost inevitable that they will--but sometimes our attention to nuance leaves us unable to answer pressing policy questions, questions that ask for broad scope rather than telescopic detail.

We are in the midst of a huge national experiment in teacher education in this country. Alternative routes into teaching are proliferating at a dizzying pace. The field needs more studies that look across pathways into teaching, that help us to develop better distinctions among preparation programs than our current vocabulary of alternative and traditional programs, 4- or 5-year programs, or fifth-year programs. As many have demonstrated, terms such as alternative or traditional are all but meaningless in helping us to understand the characteristics of a program other than when students become the teacher of record (e.g., Zeichner & Conklin, 2005). We need better ways of characterizing the features of teacher education that matter most in preparing teachers to work successfully with students.

We also need more studies that can address the issues of selection bias that were highlighted in the work of the National Center for Research on Teacher Learning (NCRTL; Kennedy, 1998). How do we look at the value added by teacher education given the characteristics of the particular group of teachers that choose to enter a program? Although case studies of Stanford University, the University of Washington, Bank Street, or University of Virginia provide compelling images of teacher education, the fact is that these institutions enroll a rather elite group of students to begin with and will never be able to produce the numbers of teachers that we need for our nation's schools. We need studies that include large public institutions such as the City University of New York and California State Universities as well as the large, for-profit institutions that are producing significant numbers of teachers, such as the University of Phoenix. We also need to study the many kinds of alternative-route programs that have sprung up in the past decade. In many ways, we now have the kind of natural variation in teacher education that lends itself to comparative research, similar to the studies of Head Start in the 1970s, yet relatively little research has exploited this variation.

To take advantage of this natural experiment in teacher education, we need to employ more sophisticated methods that enable us to look at a range of factors that might affect outcomes that matter to us. I doubt that any one feature of teacher education, such as cohort organization or even program coherence, both touted in proposals to reform teacher education, will account for much of the variance in outcomes. Instead, we need to look at multiple features of teacher education, including both structural features such as the use of cohorts and the design of field experiences, and substantive issues, such as the curricular emphasis on reading or on

teaching diverse learners in urban schools. To look at the multiplicity of features, researchers in teacher education will need to find and use methodological tools that can model such interactions, such as those currently being used by sociologists and economists.

The field also needs more studies that include a wider range of outcomes of teacher education. We need to look beyond cognitive outcomes for prospective teachers, including changes in knowledge, belief, and reflection, toward outcomes that include classroom practices and student outcomes as well. Current efforts to document classroom practice have relied primarily on in-depth qualitative observations, making it difficult to include large numbers of teachers in our studies. As a field, we need to create new tools for looking at classroom practices of our graduates that enable us to conduct larger scale studies of the relationship between teacher education and classroom practices. The use of teacher logs in the Study of Instructional Improvement might be one example of such a possibility. Analyzing the relationship between teacher education and student learning is even more fraught with difficulty. Although we complain justifiably that reviewing students' achievement on standardized tests is too narrow a measure of student learning, we have been slow to develop other measures of student learning that can be used in large-scale research. Jo Boaler's (2000) research in math education links teaching and learning in secondary mathematics classrooms using multiple measures of student learning, including the ability to solve novel problems, as well as measures of students' affective responses to math. Such research serves as one example of how to create multiple measures that address potentially different outcomes. The work-sample approach of Del Schalock and his colleagues represents yet another approach to documenting the link between teacher education and student learning (Schalock, Schalock, & Girod, 1997).

In addition, teacher educators need to think more creatively about how best to leverage their often-limited time for research into studies that will yield findings with both local and more general implications. The Ohio Teacher Quality Partnership (Lasley, Siedentop, & Yinger, 2006) offers one example of a consortium of all teacher-education institutions in a state agreeing to work together on a common study of teacher education. The study will generate findings that will be useful for local program improvement and to more general policy-related debates about teacher preparation.

Finally, we need to be preparing ourselves and our graduate students to engage in this kind of research. One unintended consequence of our field's turn toward more qualitative methods has been that we are preparing a generation of researchers who may not have the necessary understanding of the methods used by the economists and sociologists who are increasingly doing the most high-profile research in teacher education. Not only are we close to losing jurisdiction over the preparation of teachers, we are also becoming increasingly marginal to the production of knowledge used by policy makers in this field. If those of us in teacher education do not find ways to work with scholars in these disciplines, we risk losing jurisdiction over the production of academic knowledge for teacher education, another serious blow to our field (Abbott, 1988). This suggests implications both for doctoral education and for the ongoing professional development of researchers in the field (cf. Pallas, 2001; Shulman, Golde, Bueschel, & Garabedian, 2006).

CONCLUSION

As teacher educators, we have suffered the Chinese blessing of living in interesting times. We live in a time of serious jurisdictional challenges and ideological chasms. We live in a time of the proliferation of standards and the fear of standardization. We live in a time when people are finally paying attention to educational research, if only to critique it.

If university-based teacher education is to survive, we must not make the mistake of dismissing these challenges as a passing phase or presuming that these criticisms come only from people who do not understand the

complexities of teaching and teacher education or who do not care about children and teachers. Many of our critics care passionately about educational opportunities for all students but do not share our beliefs about how best to ensure those opportunities. They believe in the importance of educational research but disagree on how best to conduct such research (cf. Angrist, 2004).

As teacher educators, we do important and intellectually challenging work. We prepare the teachers who will matter desperately in the lives of the children whom they teach. But, as a professional community, we cannot assume that because we have held jurisdiction over the preparation of teachers in the past, we will continue to maintain our authority in this area. As Abbott's work amply illustrates, professions can and do lose control of the tasks that have defined them. To meet the challenges of our critics, we must strengthen the academic knowledge in our field, creating more robust understandings in the areas of assessment and effective classroom practices--the heart of professional diagnosis and treatment, in Abbott's terms. At the same time, we must aggressively investigate the practice of teacher education and offer professional education that reflects the needs of our students and the needs of our schools. We must gather evidence on the outcomes of teacher education, both for beginning teachers and for their students, and change our practices if necessary, in accordance with what we find. For as Abbott (1988) again has noted, "With no effective treatments, abstractions are simply generalities without legitimacy" (p. 103).

The diagnosis seems clear: Our field is in crisis. But in meeting the challenges posed by our critics, we also have the chance to strengthen our field significantly. In crisis lies opportunity.

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NOTES

(1.) The situation facing teacher educators differs, in two important ways, from Abbott's (1988) framework. First, teacher education is not facing a jurisdictional challenge from another professional group. In this case, it is combination of policy makers, district administrators, and independent education organizations that are challenging the jurisdiction of university-based teacher education, rather than another profession. This changes the nature of the jurisdictional challenge posed by Abbott. The situation facing teacher education may be explained, in part, by a second difference. Unlike medicine, psychology, or the law, teaching is generally not considered a dominant profession, in large part because it does not control entry into the profession. State governments, rather than professional organizations, are responsible for setting the standards and issuing licenses to teach. Its status as a semi-profession (Etzioni, 1969) might make teaching much more vulnerable to attack. However, responsibility for knowledge production is another hallmark of a profession, and this is an area in which universities do maintain control. For this reason, I focus primarily on this aspect of Abbott's argument. I also borrow Abbott's (1988, p. 318) looser definition of a profession, agreeing with his argument that his looser definition "works well enough."

(2.) I would like to thank Josh Glazer for his helpful correspondence on this point.

(3.) I would like to thank Suzanne Wilson for this observation.

(4.) The new Standards for Reporting on Empirical Social Science Research in AERA Publications, published by the American Educational Research Association (2006), is one example of how professional organizations in education are addressing this issue.

(5.) Mary Kennedy also addresses this problem of selection bias in her work on the Teacher Education and Learning to Teach (TELT) project.

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