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"Re-Culturing" Teacher Education: Inquiry, Evidence, and Action

Marilyn Cochran-Smith
Boston College

Boston College Evidence Team

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"Re-Culturing" Teacher Education: Inquiry, Evidence, and Action

Marilyn Cochran-Smith[1] and the Boston College Evidence Team

1. Boston College, Chestnut Hill, MA, USA

Corresponding Author:

Marilyn Cochran-Smith, Cawthorne Professor of Education, Lynch School of Education, Boston College, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, USA; phone: (617) 552-0674; fax: (617) 552-1840 Email: cochrans@bc.edu

Abstract

Currently the press to make policy and practice decisions on the basis of evidence is being coupled with recognition that real change requires shifts in organizational culture. Consequently, there are now many efforts to "re-culture" organizations by making evidence central to decision making. In this article, the authors problematize the notion of a "culture of evidence" in teacher education. Then the article identifies four key aspects involved in efforts to create a culture of evidence at one institution over a five-year period: (1) development of a portfolio of studies about processes and outcomes; (2) recognition that teacher education always poses values questions as well as empirical questions; (3) an exploratory, open-ended approach to evidence construction; and, (4) multiple structures that institutionalize evidence collection and use locally and beyond. The authors suggests that building cultures of evidence has the potential to be transformative in teacher education, but only if challenges related to sustainability, complexity, and balance are addressed.

Over the past decade in the United States and a number of other nations, the evidence-based education movement, which holds that decisions about practice and policy should be made on the basis of empirical evidence about outcomes, has gained a firm foothold (Moss 2007; Trinder 2000). At the same time and along different lines, there has been a dramatic shift in how we understand educational change—a shift away from the idea that change can be accomplished simply by implementing decided upon innovations and policies and toward the idea that real reform means changing the culture of institutions (Fullan 2001). Currently, in a number of fields—and with more or less success—these two ideas are being combined. That is, the idea of making decisions about practice and policy on the basis of evidence is being coupled with recognition that unless there is a shift in culture, nothing but superficial change can happen in organizations. As a result, there are now many initiatives intended to create new "cultures of evidence" and "cultures of inquiry" in institutions (Knapp, Copland, & Swinnerton, 2007) and/or to "re-culture" organizations so that using evidence and assessment data is central to the way decisions about local policy and practice are made (e.g., Louis, 2008; McLaughlin & Talbert, 2006).

This article begins by problematizing and critiquing the notion of a "culture of evidence" as it applies to teacher education, suggesting that, despite the language, some current efforts look more like top-down implementation of predetermined policies than they do organic and broadly participatory culture building processes. Informed by this critique, the article analyzes efforts at one institution to produce valid and useable evidence with the goal of changing the culture of decision-making. The article identifies four key aspects that supported efforts to build a culture of evidence: (a) use of mixed methods and a dialectic approach to generate a portfolio of studies about teacher education programs and the processes; (b) recognition that in addition to posing empirical questions, teacher education always poses values questions that cannot be settled simply by assembling good evidence; (c) a situated and exploratory approach to evidence construction, which contrasts with the predetermined confirmatory approach often involved in higher education accreditation; and (d) multiple structures that systematize and institutionalize inquiry and evidence use at the local level and beyond.

This article suggests that building new cultures of evidence and inquiry in teacher education has the potential to be transformative and revitalizing, especially

if these cultures are guided by shared beliefs about the purposes of schooling in democratic societies and about the roles teachers and teacher educators can play in social change. With that said, however, the article concludes with the point that genuine culture shift is difficult. Several of the challenges that constrain these efforts are considered, including issues related to sustainability, complexity, and balance.

"Re-Culturing" Teacher Education

As we near the end of the decade, phrases such as re-culturing schools and creating a culture of evidence in higher education are firmly ensconced on the list of most popular educational catchphrases. As Michael Fullan announced in 2001, "Re-culturing is the name of the game" (p. 3). The background for understanding this quote was Fullan's argument that there were dramatically differing ideas about change underlying various initiatives in schools and other organizations. On one hand were efforts to bring about educational change through restructuring, formal requirements, and other policies mandated from above. On the other hand were efforts to bring about change in the cultures of schools by focusing on participants' values, beliefs, and habits; the deeper meanings of proposed changes for the social organization of daily life and work in organizations; and the broader implications of proposed changes for shared ideas about the purposes of schooling. Fullan argued forcefully that efforts like the former almost always backfired because they ignored the complexity and multiple dimensionality of change and failed to recognize that deep and genuine change depended on people's understandings and beliefs as much as, or even more than, it depended on their behaviors and strategies.

In the past few years, the terms culture and re-culturing have carried the day, and they have been attached to a wide array of initiatives in schools, health care, business, and higher education where participants are urged to use evidence about outcomes to respond to new demands for accountability. Unfortunately, however, what sometimes seems to get lost in this new coupling of "culture" and "evidence" is the essence of culture itself. When schools and other organizations have been conceptualized as "cultures" (Feiman-Nemser & Floden, 1986; Sarason, 1971, 1996), the emphasis has been on evolving local systems of values, beliefs, norms, attitudes, identities, and meanings (Geertz, 1973) as well as how these shift over time and how existing knowledge and power hierarchies are sometimes challenged (Achinstein and Ogawa, 2006) and/or sometimes reinforce the status quo (Wood, 2007). From this perspective, it is clear that "cultures of evidence" would look different in different local educational settings, depending on the values and beliefs of participants and on the different purposes and traditions of programs, projects, and institutions.

It is important to acknowledge that nuanced understandings of culture do occasionally inform discussions about using evidence for decision making, as is the case in the 2007 Yearbook of the National Society for the Study of Education on evidence and decision making in education (Moss, 2007). Moss and Piety (2007), for example, framed the NSSE volume as part of an emerging body of literature intended to:

> decenter, complement, and challenge studies of the impact of standards-based accountability to consider questions about how education professionals (might) actually interpret and use tests and other sources of evidence to make routine decisions in their daily work; about how these practices shape and are shaped by organizational structures, routines, and cultures; and about the sorts of learning and professional agency that are fostered. (p. 2)

As noted, however, many current discussions about creating cultures of evidence (in teacher education or elsewhere) do not reflect the understandings of culture in the quotation above. To the contrary, they are conspicuous by the absence of cultural nuance, including an absence of situated understandings of the role of human interpretation in constituting and using evidence (Gee, 2007), a failure to understand the decidedly nonlinear relationship between evidence and courses of action (Phillips, 2007), and oversimplification of the process of interpreting competing research outcomes and multiple data sources for local situations (Spillane & Miele, 2007).

One of the most striking examples of the absence of cultural understandings and nuances from discussions about evidence cultures—and one that is directly relevant to teacher preparation— is a set of three recent Educational Testing Service (ETS) white papers on "a culture of evidence" in higher education (Dwyer, Millett, & Payne, 2006; Millett, Stickler, Payne, & Dwyer, 2007; Millett, Payne, Dwyer, Stickler, & Alexiou, 2008). These papers provide an overview of the current landscape of assessment models in higher education and a framework for a comprehensive and transparent system of gathering and disseminating evidence about college student learning outcomes. The reports argue that a culture of evidence in postsecondary education should include standardized measures of graduates' preparedness to enter the workforce, content-specific knowledge, "soft" or "noncognitive" skills such as creativity and persistence, and student engagement.

Throughout the papers, with the exception of a nod to the idea that evidence work might need to be done by administrators with assessment expertise rather than faculty, there is no discussion about how such a

system would coincide or collide with the local cultures of colleges and universities. There is no consideration of how participants' already-existing beliefs, values, identities, and practices would both shape and be shaped by the launching of a "new era in higher education accountability" (Dwyer et al., 2006, p. 3), which would constitute a "paradigm shift" and a "sea change of considerable magnitude" for higher education (Millett et al., 2008, p. 3). In short, although the phrase culture of evidence is used as the banner title for all three papers, this is discussed almost exclusively in terms of how to implement a federally advocated higher education reform, which is squarely located within the current educational accountability regime. This is not informed by ideas about how culture and cultural change are linked to participants' differing experiences, values, and beliefs and to the varying traditions, purposes, and missions of local institutions.

In this article, we take a more nuanced and long-range view of what it means to create a "culture of evidence" about teacher education curriculum, policy, and practice at one higher education institution over the course of time. The article raises questions about what counts as evidence and for whom, how multiple evidence sources are differently interpreted by differently positioned participants within a culture, how evidence construction and interpretation are shaped by participants' values and beliefs as well as traditions and institutional missions, and what conditions both constrain and support attempts to transform decision making over the long haul.

Boston College's TNE Evidence Project: A Dialectic Mixed-Methods Approach

The Teachers for a New Era (TNE) project, which began at Boston College (BC) in 2003, is an initiative funded primarily by the Carnegie Corporation of New York to improve the preparation of teachers. According to the original prospectus, the theory of action behind the initiative was that "an inclusive academic culture of research, rigorous standards, and respect for evidence provides for a self-correcting and continually improving teacher education program" and serves as a model that can "readily be disseminated nationally and adopted generally by teacher education programs anywhere" (Carnegie Corporation, 2001). Instead of trying to shift the site of teacher preparation away from the university, then, as many reforms featuring alternate certification pathways do, TNE's position was that a university-based, but radically improved, kind of teacher preparation should be situated within the academy, given its unparalleled knowledge resources, research expertise, and potential for interdisciplinary collaborations between education and arts and sciences faculty (Fallon, 2006). With these purposes in mind,

Carnegie selected 11 colleges and universities,[1] each of which received $5 million over 5 years plus technical support and institutional matching funds to improve teacher preparation as an all-university responsibility and generate evidence about its impact on pupils' learning. Across institutions, TNE projects were organized around three principles: respect for evidence, collaboration with arts and sciences, and teaching as a clinically taught profession.

Shortly after its selection as a TNE site, BC2 formed a multidisciplinary Evidence Team (ET) responsible for developing instruments and conducting research to assess the impact of the program and foster evidence-gathering activities, with emphasis on evidence about teacher candidates' and pupils' learning. Over 5 years, members of the team included education and arts and sciences faculty, administrators, and students with widely differing experiences and interests and with expertise in an array of disciplines and research methods.

The team began its work by reviewing the literature related to the evidence theme of the TNE project, including the history and status of research on teacher education, value added models of educational assessment, and more generally what Kennedy (1999) called "the problem of evidence in teacher education." The team acknowledged the difficulty of linking teacher preparation with the eventual achievement of K-12 pupils, consistent with the conclusion of the American Educational Research Association (AERA) Panel on Research and Teacher Education:

> This kind of research depends on a chain of causal evidence with several critical links: empirical evidence demonstrating the link between teacher preparation programs or structures and teacher candidates' learning (i.e., candidates' knowledge growth, skills and dispositions); empirical evidence demonstrating the link between teacher candidates' learning and their practices in actual classrooms; and empirical evidence demonstrating the link between the practices of graduates of teacher preparation programs and what their pupils learn. Individually each one of these links is complex and challenging to estimate. When they are combined, the challenges are multiplied. . . . Unraveling the complicated relationships between and among these variables and the contexts and conditions in which they occur is exceedingly complex, and of course this entire enterprise assumes in the first place that there is consensus about appropriate and valid outcome measures, an assumption that is arguable. (Cochran-Smith & Zeichner, 2005, p. 3)
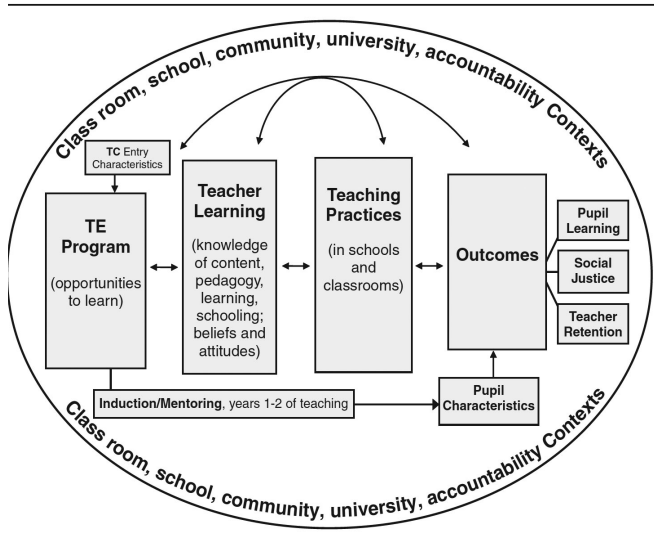
Figure 1. A conceptual framework for assessing teacher education
Created by Marilyn Cochran-Smith and the Boston College TNE Evidence
Team, March 2004. Used with permission.
TC = Teacher Candidates; TE = teacher education; TNE = Teachers for a New Era.

With these difficulties acknowledged, the team developed a conceptual framework3 for assessing the impact of teacher education and understanding the process of learning to teach (see Figure 1). The graphic in Figure 1 represents the core aspects of teacher preparation and learning to teach that the ET concluded would have to be taken into account to understand teacher education's impact: the characteristics of entering teacher candidates; how these characteristics interact with the learning opportunities available in the program; how teacher candidates experience and make sense of these opportunities; whether and how teacher candidates/ graduates actually use what they learn in classrooms and schools (including teachers' strategies, interpretive frameworks, and ways of relating to students and others); desired school outcomes, including pupils' academic, social, and civic learning as well as teacher retention and teaching for social justice; and how all of these are embedded within varying institutional, school, social, cultural, and accountability contexts and influenced by the differing conditions in which teachers work.

Given this complex conceptual framework and team members' diverse methodological and disciplinary perspectives, we concluded that no single outcome and no single research design was likely to capture the impact of teacher education. Although this conclusion is not surprising, it was essential to building a culture of evidence that took a "cultural" view in that it acknowledged team members' values and beliefs, including their long-held yet diametrically differing practices and assumptions about research, evidence, questions, and the roles of researchers. In short, in terms

of the question of evidence in teacher education, we adopted what has been called a "dialectic mixed methods inquiry" approach (Greene & Caracelli, 2003), which means that different research designs and approaches are regarded as providing valuable, but always partial, perspectives on the topic under investigation, and the tensions created by studies' differing assumptions and ways of knowing are regarded as generative of richer understandings rather than as incompatible approaches.

To make progress on the complex problem of getting to evidence, we worked simultaneously on a number of studies that are methodologically different but conceptually compatible. Over time, we built an evidence portfolio—that is, a collection of quantitative, qualitative, and mixed-methods research studies addressing different pieces of the same broad topic, as represented in the conceptual framework. As Figure 2 indicates, the evidence portfolio has seven major projects, numbered here to match the numbers on the figure, rather than as an indication of order of development or importance: (1) a series of surveys examining teacher candidates'/graduates' perceptions, experiences, beliefs, and reported practices; (2) a set of instruments that conceptualize and measure learning to teach for social justice as an outcome of teacher education; (3) qualitative case studies, examining relationships among candidates' entry characteristics, learning in the program, classroom practices, pupils' learning, and social justice; (4) two analyses, drawing on longitudinal data bases from (1) and (3) above, designed to identify key interrelationships between teacher development and teacher retention; (5) cross-sectional and value added assessment of the impact of BC graduates on pupils' test performance; (6) comparison of graduates' classroom practices and pupils' performance on content tests for teachers from BC and from an alternate pathway into teaching in the same school district; and (7) a mixed-methods study of teacher candidates' ability to raise questions, document pupils' learning, and interpret and alter classroom practice using classroom-based inquiry. Each of these studies was designed to investigate one or more relationships outlined in the conceptual framework in Figure 1 and reproduced in smaller form in the upper center of Figure 2.

The dialectic approach is based on the assumption that philosophical and paradigmatic differences as well as differences in research practices are real and important in mixed-methods research projects. As Greene and Caracelli (2003) suggested, this approach is a "way of intentionally engaging with multiple sets of assumptions, models, or ways of knowing" with the goal of richer understandings. Along these lines, while ET subgroups worked separately on the various studies within the portfolio, they also simultaneously worked together on the larger project; and the whole team engaged in discussion about research questions, designs, analyses,
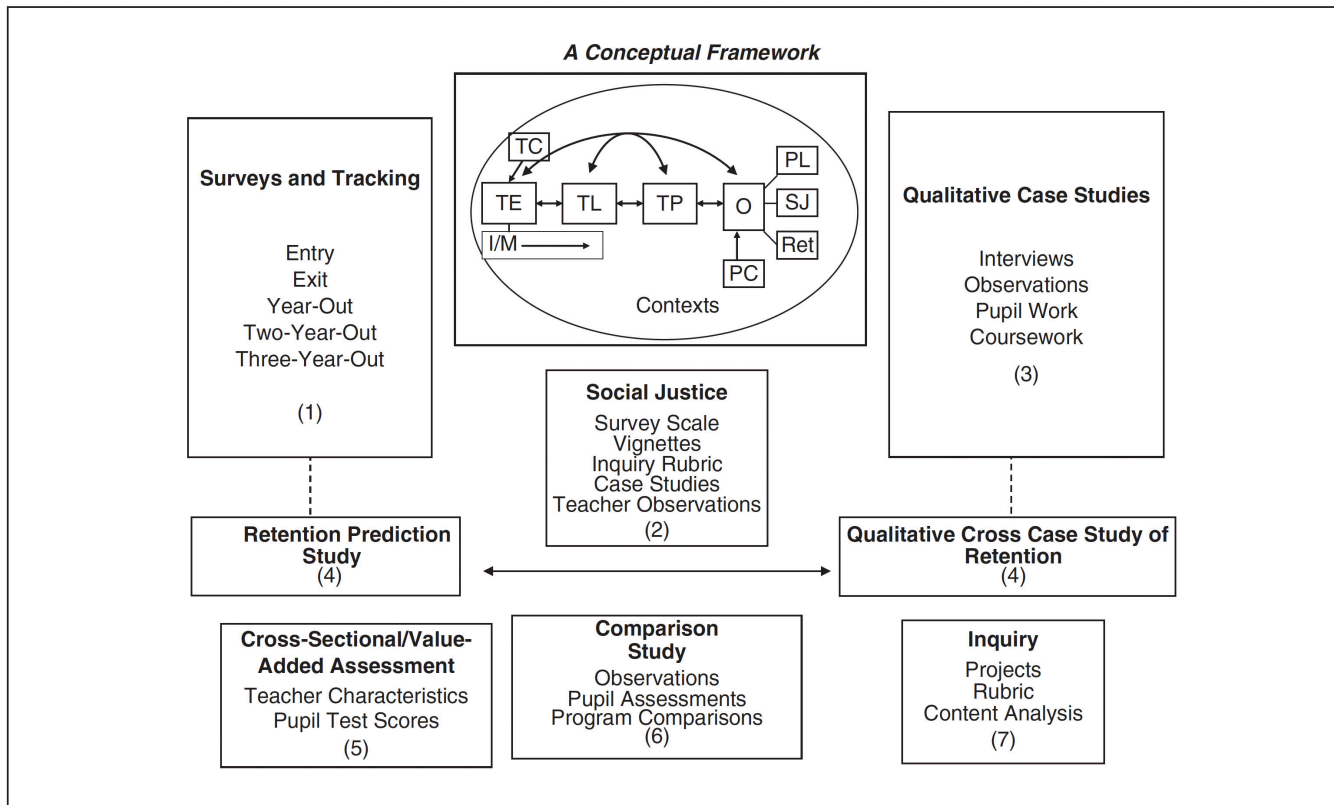
Figure 2. Boston College Teachers for a New Era (TNE) evidence portfolio.
See Figure 1 for the conceptual framework presented here in abbreviated form.

and interpretations for all of the studies. In this way, we deliberately linked the studies to one another from the outset and intentionally considered how the opposing ideas underlying the studies "talked to" and enriched each other.

Teacher Education as Social and Cultural Practice

A second factor that helped to support our efforts to build a culture of inquiry and evidence was our perspective on teacher education as social and cultural practice, which means that in addition to posing empirical questions, we worked from the premise that teacher education always poses values, ethical, and moral questions as well that cannot be settled simply by assembling good evidence. Working from this perspective, we assumed that any initiative intended to reform teacher education had to be understood in terms of the larger social structures within which it is embedded, including the social hierarchies to which it is related and its larger social purposes and roles in society. William Sullivan's (2000) work on the social responsibility of higher education is useful here. He argued that in the modern university, the production and dissemination of knowledge and skills as tools for economic development and individual social mobility have eclipsed the university's purpose as a "citizen within civil society" (p. 5). This applies doubly to teacher education, which is currently struggling to define its social purpose within the university and society.

This struggle is closely related to the question of values or ideology in teacher education. In his book on ideology and discourse, James Gee (1996) wryly stated, "To many people, ideology is what other people have when they perversely insist on taking the 'wrong' viewpoint on an issue. Our own viewpoint, on the other hand, always seems to us simply to be 'right'" (p. 1). Gee pointed out that in contemporary discourse, the word ideological is frequently used to cast aspersions on the viewpoints of one's opponent, implying that he or she is an ideologue who operates within a closed system and is unwilling to consider other points of view. In reality, however, the term ideological may be used to refer to the fact that any—and every—given position or stance about a social practice, such as teacher education, is based on some set of cultural ideas, ideals, beliefs, principles, and values, whether these are stated explicitly or not. Although we use the term social and cultural practice to describe teacher education, rather than the term ideological practice, to avoid misunderstandings and negative connotations, our point is that teacher education is neither neutral nor value-free but is instead rooted in cultural practices and ideals, whether these are stated explicitly or not.

In working to create a culture of evidence at BC, we acknowledged the value-laden nature of teacher education from the outset. But we also worked from the

assumption that research too is value-laden and that, in fact, values are integral to every step of the research process. Combining the idea that all teacher education practice is—in part—social and cultural with the assumption that all research is—in part—value-based led us to conclude that BC's long-standing institutional commitment to social justice would—and should— influence how we posed research problems, framed questions, and collected and analyzed data (Mertens, 2003). Of course, in working to create cultures of evidence in the sense we are discussing it here, other teacher education programs and institutions, with different traditions and values, would pose different research questions and use different assessments and instruments to get at those values.

Along these lines, at BC, we worked to construct "teaching for social justice" as a legitimate and measurable outcome of teacher education to which we were strongly committed. Measuring and assessing teacher candidates' progress toward the goal of teaching for social justice as an outcome of teacher education is complicated and controversial. It requires conceptual clarity about the bottom line of social justice teaching as improving students' learning and enhancing their life chances as well as the development of multiple, complex measures. The research team worked on both of these agendas. We engaged in ongoing scholarly efforts to theorize teacher education policy, practice, and curriculum in terms of the goal of social justice (e.g., Cochran-Smith, in press; Cochran-Smith, Barnatt, Lahann, Shakman, & Terrell, 2009; Cochran-Smith, Mitescu, Shakman, & the Boston College Evidence Team, in press), categorize and analyze current critiques and controversies related to this idea (e.g., Cochran-Smith, 2006; Cochran-Smith, Barnatt, et al., 2009; Cochran-Smith & Demers, 2008), and clarify the concept using concrete examples of teacher education practice (Cochran-Smith, Mitescu, et al., in press).

As important, we developed a set of diverse instruments and studies that treat teaching for social justice as an outcome of teacher education and attempt to measure the degree to which the BC teacher education program achieves this outcome. We mention just two of these efforts here by way of illustration. Drawing on Rasch item response theory, we developed a "Learning to Teach for Social Justice-Beliefs" (LTSJ-B) scale, which we embedded into a series of entry, exit, 1-year-out, 2-year-out, and 3-year-out surveys, administered to teacher candidates and graduates (Ludlow, Enterline, and Cochran-Smith, 2008; Ludlow, Pedulla, et al., 2008). Using the results of these surveys administered to multiple cohorts of teacher candidates and graduates, we were able to measure changes in beliefs related to teaching for social justice over time, showing significant positive gains from entry to exit that were maintained after 1 year of teaching (Enterline, Cochran-Smith, Ludlow, & Mitescu, 2008).

Along different lines and informed by critical sociocultural theory, we developed 22 qualitative case studies of teacher candidates learning to teach during the preservice period and extending through the 2nd year of teaching. All of the data collection instruments we developed, including 12 in-depth interview protocols, a detailed classroom observation protocol, and a protocol for collecting and rating teachers' assessments/ assignments and samples of pupils' work, had a social justice category or focus. This allowed us to examine teacher candidates' notions of what it means to teach for social justice as well as how these ideas play out in the classroom (Cochran-Smith, Shakman, et al., 2009), the dilemmas teacher candidates and new teachers face in classrooms and how they either take responsibility or (sometimes) distance themselves from responsibility for improving pupils' learning and their life chances (D'Souza et al., 2007), and the quality of learning opportunities teacher candidates generate in classrooms by creating particular assignments and assessments and the learning of their pupils as demonstrated by their performance on those assignments (Gleeson, Mitchell, Baroz, Cochran-Smith, & McQuillan, 2008).

We began with one conception of what it meant for teacher candidates to teach for social justice, but as we studied candidates' actual experiences, we began to question the applicability of certain dimensions of this goal and began to alter what we thought were reasonable goals for the preservice period. The main point of the examples in this section is that we worked to develop empirical evidence that was, in the first place, linked to our ideals, beliefs, and value perspectives about the purposes of schooling and the goals of teacher education and that also allowed us to rethink those beliefs and values as we progressed. This contributed considerably to our efforts to transform the culture of decision-making.

An Exploratory and Local Approach to Evidence Construction

The third aspect of our work that supported the development of a culture of evidence is that the studies in our evidence portfolio all addressed authentic situated questions, which were posed by people involved in the work of teacher education and for which there were not a priori answers. This exploratory and local approach to evidence construction stands in marked contrast to the confirmatory and predetermined approach often involved in teacher education accreditation reviews, where the goal is to verify compliance with external standards, and there is little room for identifying actual problems or posing genuine and situation-specific questions that might inform changes in curriculum or program structures.

With traditional teacher education accreditation reviews, for example, the emphasis can sometimes be on

detailed documentation of a program's compliance with state-level regulations and/or national standards rather than with genuine exploration about how standards are understood and enacted in the local contexts. For example, in Trivializing Teacher Education: The Accreditation Squeeze, Johnson, Johnson, Farenga, and Ness (2005) offered a scathing account of the National Council for Accreditation of Teacher Education (NCATE) accreditation process based on the authors' experiences and a questionnaire administered in 12 states. Although their analysis is definitely intended to expose problems and undoubtedly does not represent the experiences of all institutions undergoing accreditation review, the authors claimed that accreditation entails a "mind-numbing array of standards, elements, performance indicators, and components—all requiring enormous amounts of time and paperwork" (p. 92). They concluded that accreditation "oppresses" rather than "liberates" educational practice by "remov[ing] autonomy, responsibility, and creativity from individuals and requir[ing] prescriptions for content, pedagogy, and performance" (p. 103).

Our group took an approach to the task of developing evidence that was decidedly different from what can sometimes be the "numbing" and compliance-driven agenda of accreditation, although we certainly explored questions consistent with national standards. Across the studies in our evidence portfolio, we purposely asked exploratory questions, and we intentionally examined components of the program about which we knew or suspected there were concerns. Obviously this ran the risk of producing findings we did not desire and of uncovering the underside of certain aspects of the program. But this also had the potential to create new insights and to shift discussions about how to improve things from the slippery ground of anecdote and impression to the somewhat more solid ground of inquiry and evidence, informed by values. We include two examples from our evidence portfolio by way of illustration—an investigation of teacher candidates' classroom-based inquiries and a study of the classroom practices and pupils' performance of BC teachers compared with those of teachers prepared in a district-based program.

Our inquiry study used mixed methods to examine what happened when teacher candidates were required to conduct classroom research about how their practices during student teaching were connected to their pupils' learning (Barnatt, 2008; Cochran-Smith, Barnatt, Friedman, & Pine, in press). Based on quantitative analysis of inquiry project rubric scores as well as qualitative content analysis of selected projects from each scoring decile, we found that the quality of candidates' inquiries varied considerably, depending on the questions posed, what candidates counted as evidence of learning, and how they understood research. We also found that there

were unintended consequences of focusing explicitly on pupils' learning and using a scoring rubric that in some ways disconnected teaching from learning. This seemed to distract some teacher candidates from focusing on the power of formative assessment and instead encouraged a procedural understanding of the purpose of inquiry. We concluded that in some cases, contrary to our intentions, we had sent the wrong messages to candidates about inquiry as a stance on teaching rather than a time-bounded project and about the social justice aspects of the everyday work of teaching and learning.

Our comparison study examined whether there were differences in new teachers' classroom practices and pupil learning outcomes that could be linked to differences in two teacher preparation pathways—the BC program and a school-district based "alternate" program. To examine teachers' practices, the study used the Reformed Teaching Observation Protocol (RTOP) (Sawada, Piburn, Falconer, Turley, Benford, & Bloom, 2000), which was modified to include additional items related to social justice (RTOP+) (Pedulla, Mitescu, Jong, & Cannady, 2008). Although there were many technical and logistical limitations to the study (Pedulla, Salomon-Fernandez,, Mitescu, Jong, & Cochran- Smith, 2007), contrary to what we expected, there were no significant differences between classroom practices or pupils' performance for teachers from the two different pathways. Combining all the teachers into one group, however, we found that teachers in both pathways exhibited a moderate degree of teaching for social justice, and we found significant positive correlations between reformed teaching practices and pupils' scores on the math assessment and between teaching practices for social justice and scores on the mathematics assessment (Pedulla et al., 2008).

Our point here is that creating a culture of evidence and inquiry in teacher education is not about asking questions that confirm what is already known or endeavoring to prove that existing policy, curriculum, and organizational arrangements are effective. Rather, the idea is to ask open-ended questions that emerge from the everyday work of practice informed by larger debates and controversies in the field. In sharp contrast to the negative aspects that Johnson and colleagues (2005) claimed occur with accreditation reviews, one of the purposes of creating a culture of evidence and inquiry is to enhance the autonomy, responsibility, and creativity of those involved in teacher preparation. In terms of the inquiry study above, for example, the teacher education faculty is currently using the study's results along with the results of candidates' responses to survey items regarding inquiry and case study data about the role of inquiry during the early years of teaching to completely rethink and redesign the inquiry component of the curriculum. In terms of the comparison study, our analysis revealed that the two structures and commitments of the two programs were actually more

similar than different in terms of goals and purposes and curriculum, which probably explains why we did not find differences in practices or outcomes. This study has led us to more nuanced understandings of the limitations of labels such as "alternate" and "traditional" pathways into teaching, which are used to describe widely varying curricula and programs, and also led us to more inclusive ideas about teacher education for social justice.

Institutionalizing Inquiry and Evidence

In addition to the aspects we have described so far that supported the development of a culture of evidence, we learned over 5 years that it was essential to build multiple and overlapping structures that systematize and institutionalize a data-rich environment in which quantitative, qualitative, and mixed-methods assessments and studies inform decisions about teacher preparation policy, practice, and curriculum. Because the surveys were the first of the ET's projects to yield results, they provided both a unique opportunity and a unique challenge: how to introduce evidence into ongoing discussions of teacher education policies and practices in ways that were constructive, collaborative, and effective (Ludlow, Pedulla, et al., 2008). The ET instituted "data workshops" as part of teacher education faculty meetings and other contexts involving education and arts and sciences faculty and administrators. During these workshops, selected survey results were presented along with small group discussions about their meanings. Eventually analyses from other studies and assessments were also presented within data workshops, which became a periodic feature of faculty meetings, and some faculty members used survey evidence to make their cases in grant proposals regarding teacher preparation for English language learners. It is important to note here that the idea of these workshops was not simply to present data but to create a context in which data could be jointly examined; interpreted; questioned; and connected to other evidence, ongoing experience, and the larger goals and commitments of the program. Thus, in each data workshop, participants were encouraged to consider whether the data made sense in light of other evidence, experience, and the larger commitments and goals of the program. This approach is very consistent with the idea of educators engaging in practitioner research and developing an "inquiry stance" (Cochran-Smith & Lytle, 2009) on their assumptions and practices by raising questions grounded in practice, gathering data to explore those questions, and deliberating together about the meanings and implications of the data.

Part of what supported the institutionalization of this approach was the juncture between the evidence-gathering efforts described above and a school-wide decision to seek national accreditation from the Teacher Education Accreditation Council (TEAC). TEAC's approach to accreditation, which is different from the compliance approach mentioned above, requires teacher education programs to provide reliable and valid evidence for the claims their faculties wish to make about their program, their teacher candidates, and their graduates (Murray, 2000, 2005). Nearly all of the projects in our evidence portfolio were relevant to the various claims the faculty began to develop. Thus, the TEAC accreditation process—creating a "brief" with evidence-supported claims and preparing for an "audit" of that evidence by a visiting TEAC team—served as a significant leverage point for the creation of a permanent system of evidence gathering, analysis, and use. This involved both the creation of a new full-time, high-level administrative position, titled the "director of accreditation and assessment," and the integration of evidence-gathering and analysis activities into already-existing administrative offices that oversaw fieldwork and practicum experiences, institutional data management, and the services for students. This also coincided with discussions at the university level about possibilities for following graduates, which would use our surveys and tracking system as a model.

Another factor that supported the institutionalization of a culture of evidence was that we relied on no single evidence-gathering project or study but, as noted, on a mixed-methods portfolio of studies and a linked data base system (Mitescu et al., 2009). For example, survey system data can be linked to data gathered as part of the qualitative case studies project and to other program and institutional databases, such as candidates' SAT/GRE scores, course grades, performance on program capstone projects, and scores on key program assessments. These enable various types of cross-sectional and longitudinal analyses and make it possible to examine links among candidates' entering characteristics; BC learning opportunities; placement and retention in schools; and pupils' learning, including, for a small subset of teachers, their pupils' scores on statewide standardized tests. These links also make it possible for faculty members and doctoral students to engage in research on key topics in teacher education that have relevance beyond the local institution.

Two brief illustrations make this point. First, there has been considerable interest in the survey instruments created for this project, particularly the "Learning to Teach for Social Justice-Beliefs" (LTSJ-B) scale, mentioned above. This scale has now been used in multiple U.S. teacher education institutions and by teacher preparation institutions in Ireland, Scotland, New Zealand, and Puerto Rico, where the scale has been translated into Spanish. This not only allows for interesting cross-cultural analyses but also makes it clear that the evidence work of this group has relevance beyond the local context. Second, a core group of people from the ET has secured a new grant from the Ford

Foundation to build on the existing evidence portfolio in order to examine and "unravel" some of the complex relationships between teacher development and teacher retention. What is unique about the project is that it draws on two in-depth, longitudinal databases, one quantitative and one qualitative. We intend to develop a prediction model of teacher retention, based on event history analysis, which will connect teacher preparation and teacher retention. We also intend to build a deep and rich understanding of the factors that influence teachers' development and career paths in the profession based on qualitative cross case analysis of 22 cases with some individuals leaving teaching at various points. This project will also combine and juxtapose these two analyses to consider implications for policy and practice.

Conclusion: Complexity, Sustainability, and Balance

In concluding, we want to return to the major issue with which we began. The transformative and revitalizing possibilities for teacher education of combining two big ideas—the idea of making decisions about policy and practice on the basis of evidence, on one hand; and recognition that institutional change requires revisions in the cultures of organizations, not just implementation of decided-upon innovations, on the other. In this article, we have suggested that four key aspects of our own ongoing work in one institution helped to support the emergence of a culture of evidence and inquiry in teacher education in ways that have indeed been transformative and revitalizing.

But our experience over 5 years also suggests that actually changing institutional culture is much easier said than done, and there are several critical factors that constrain the possibilities. Many current discussions about the importance of creating a "culture of evidence" in education sound more like calls for mandated reforms than they sound like efforts that acknowledge the complex role of interpretation, traditions, beliefs, and values in establishing and using multiple forms of evidence in situated local contexts. Many current discussions seem to regard a "culture of evidence" as simply the latest technique for reaching goals that are already clearly established and squarely located within the current accountability regime rather than raising questions that reflect cultural nuances and allow for deliberation and disagreements regarding the purposes of schooling, the meaning of justice, and the life chances of school children.

Changing the culture of teacher education, so that decisions are made in part on the basis of evidence, is complex and multilayered. It does not happen in a day, a week, or even 5 years. As we have suggested, it involves ongoing efforts, rethinking, and local mechanisms that help to sustain it. It requires that people reflect on their values and beliefs, assess the degree to which these are appropriate for the intended goals, and use evidence to help consider whether policies and practices should be modified to realize these values.

In teacher education, finding the right balance in decision-making is a considerable challenge and can be a constraint that works against creating a culture of evidence. Some discussions about the evidence-based education movement use the phrase "decisions driven by evidence" as a kind of mantra about how educational institutions ought to be changed. But we have found that there is a difference between a culture where evidence "drives" decisions and a culture where evidence "informs" decisions. The former suggests a narrow, almost empiricist focus and a linear, uncomplicated conception of the relationship between evidence and policy/practice. On the other hand, the latter acknowledges that evidence alone can never tell us what to do. Rather, evidence always has to be interpreted. As Phillips (2007) suggested, "Evidence is made, by way of an argument that links together a number of disparate premises to form a case in support of some theory or policy . . . the very same pieces of evidence can be used for different purposes" (p. 395). What we think the evidence suggests is mediated by the availability of resources, our priorities and values, and the trade-offs involved in selecting one direction over another. All of these are shaped by the larger social, historical, and institutional contexts within which decisions are embedded.

Creating a culture of evidence and inquiry in teacher education has the potential to be transformative and to be one of the big changes that brings new vitality to teacher education curriculum, policies and practices. A culture of evidence and inquiry builds the capacity within teacher education programs to assess progress and effectiveness, shifts accountability from simply external policy to also include internal practice, and generates knowledge that can be used both in local programs and more broadly. Clearly, this is nothing short of a culture shift in teacher education. But it is not a straight forward or a simple shift.

Authors' Note

During the time period this article represents, the Boston College Evidence Team included Lynch School of Education (LSOE) faculty members and administrators: Marilyn Cochran-Smith (chair), Sarah Enterline, Alan Kafka, Fran Loftus, Larry Ludlow, Patrick McQuillan, Joseph Pedulla, and the late Gerald Pine; Teachers for New Era (TNE) administrators: Jane Carter and Jeff Gilligan; and doctoral students from both curriculum and instruction and educational research, evaluation and measurement: Joan Barnatt, Stephanie Chappe, Matthew Cannady, Lisa D'Souza, Ann Marie Gleeson, Cindy Jong, Kara Mitchell, Emilie Mitescu, Aubrey Scheopner, Karen Shakman, and Diana Terrell. Although there were a few changes, the composition of the team was remarkably stable over the years.

Declaration of Conflicting Interest

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Notes

1. Four Teachers for a New Era (TNE) sites were selected in 2002, and seven were selected in 2003. They include Bank Street College of Education, Boston College, California State University– Northridge, Michigan State University, University of Virginia, Florida A&M University, Stanford University, University of Connecticut, University of Texas at El Paso, University of Washington, and University of Wisconsin–Milwaukee.
2. Boston College is a private, Jesuit University serving some 9,000 undergraduates and 6,000 graduate students. The Lynch School of Education (LSOE) prepares 250 to 270 undergraduate and graduate teacher candidates per year for licensure in early childhood, elementary, secondary, moderate special needs, severe and multiple disabilities, and reading/literacy education.
3. This framework was first presented in-house in 2004 and nationally in 2005 (Cochran-Smith, 2005)

References

Achinstein, B., & Ogawa, R. (2006). (In)fidelity: What the resistance of new teachers reveals about professional principles and prescriptive educational policies. Harvard Educational Review, 76(1), 30-63.

Barnatt, J. (2008, March). But are they learning? Pre-service teachers' use of inquiry focused on student outcomes. Paper presented at American Educational Research Association Annual Meeting, New York.

Carnegie Corporation of New York. (2001). The corporation's program: Teachers for a new era prospectus. Retrieved October 1, 2008. Retrieved from www.carnegie.org/sub/program/teachers_ announcements.html

Cochran-Smith, M. (2005). Framing Teacher Education: Investigating the Impact of Teacher Education. Paper presented at American Educational Research Association Annual Meeting, April 2005. Montreal, Canada.

Cochran-Smith, M. (2006). Teacher education and the need for public intellectuals. The New Educator, 2, 1-26.

Cochran-Smith, M. (in press). Toward a theory of teacher education for social justice. In M. Fullan, A. Hargreaves, D. Hopkins, & A. Lieberman (Eds.), The international handbook of educational changes (2nd ed.). New York: Springer Publishing.

Cochran-Smith, M., Barnatt, J., Friedman, A., & Pine, G. (in press). Inquiry on inquiry: Practitioner research and students' learning. Action in Teacher Education.

Cochran-Smith, M., Barnatt, J., Lahann, R., Shakman, K., & Terrell, D. (2009). Teacher education for social justice: Critiquing the critiques. In W. Ayers, T. Quinn, & D. Stovall (Eds.), The handbook of social justice in education (pp. 625-639). Philadelphia: Taylor & Francis.

Cochran-Smith, M., & Demers, K. (2008). Teacher education as bridge? Unpacking curriculum controversies in teacher education. In M. Connelly (Ed.), Handbook of curriculum research (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

Cochran-Smith, M., & Lytle, S. L. (2009). Inquiry as stance: Practitioner research in the next generation. New York: Teachers College Press.

Cochran-Smith, M., Mitescu, E., Shakman, K., & the Boston College Evidence Team. (in press). Just measures: Social justice as a teacher education outcome. Teacher Education and Practice.

Cochran-Smith, M., Shakman, K., Jong, C., Terrell, D., Barnatt, J., & McQuillan, P. (2009). Good and just teaching: The case for social justice in teacher education. American Journal of Education, 115(3), 347-378.

Cochran-Smith, M., & Zeichner, K. (Eds.). (2005). Studying teacher education: The report of the AERA Panel on Research and Teacher Education. Washington, DC: American Educational Research Association.

D'Souza, L., Miller, G., McQuillan, P., Scheopner, A., Mitchell, K., Gleeson, A., et al. (2007, April). Reflecting on pupil learning: Growing as a teacher. Paper presented at American Educational Research Association Annual Meeting, Chicago.

Dwyer, C., Millett, C. M., & Payne, D. G. (2006). A culture of evidence: Postsecondary assessment and learning outcomes. Princeton, NJ: ETS.

Enterline, S., Cochran-Smith, M., Ludlow, L., & Mitescu, E. (2008). Learning to teach for social justice: Measuring changes in the beliefs of teacher candidates. The New Educator, 4, 1-24.

Fallon, D. (2006). The Buffalo upon the chimney piece: The value of evidence. Journal of Teacher Education, 57(2), 139-154.

Feiman-Nemser, S., & Floden, R. (1986). The cultures of teaching. In M. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 505-526). San Francisco: Jossey-Bass.

Fullan, M. (2001). The new meaning of educational change (3rd ed.). New York: Teachers College Press.

Gee, J. (1996). Social linguistics and literacies: Ideology in discourses. London: Taylor & Francis.

Gee, J. (2007). Reflections on assessment from a socioculturalsituated perspective. In P. Moss (Ed.), Evidence and decision making, the 106th yearbook of the National Society for the Study of Education (Pt. I, pp. 362-375). Malden, MA: Blackwell.

Geertz, C. (1973). The interpretation of culture. New York: Basic Books.

Gleeson, A. M., Mitchell, K., Baroz, R., Cochran-Smith, M., & McQuillan, P. (2008, April). Learning to Teach for Social Justice: What's Pupil Learning Got to Do With It? Paper presented at the Annual Meeting of the American Educational Research Association, New York.

Greene, J., & Caracelli, V. (2003). Making paradigmatic sense of mixed methods practice. In A. Tashakkori & C. Teddlie (Eds.), Handbook of mixed methods in social and behavioral research (pp. 91-110). Thousand Oaks, CA: Sage.

Johnson, D., Johnson, B., Farenga, S., & Ness, D. (2005). Trivializing teacher education: The accreditation squeeze. Lanham, MD: Rowman & Littlefield.

Kennedy, M. (1999). The problem of evidence in teacher education. In R. Roth (Ed.), The role of the university in the preparation of teachers (pp. 87-107). Philadelphia: Falmer.

Knapp, M., Copland, M., & Swinnerton, J. (2007). Understanding the promise and dynamics of data-informed leadership. In P. Moss (Ed.), Evidence and decision making, the 106th yearbook of the National Society for the Study of Education (Pt. I, pp. 74-104). Chicago: National Society for the Study of Education.

Louis, K. S. (2008). Creating and sustaining professional communities. In A. Blankstein, P. Houston, & R. Cole (Eds.), Sustaining professional learning communities (pp. 41-57). Thousand Oaks, CA: Corwin.

Ludlow, L., Enterline, S., & Cochran-Smith, M. (2008). Learning to teach for social justice: An application of Rasch measurement principles. Measurement and Evaluation in Counseling and Development, 40(4), pp. 194-214.

Ludlow, L., Pedulla, J., Enterline, S., Cochran-Smith, M., Loftus, F., Salomon-Fernandez, Y., et al. (2008). From students to teachers: Using surveys to build a culture of evidence and inquiry. European Journal of Teacher Education, 31(4), 1-19.

McLaughlin, M., & Talbert, J. (2006). Building school-based teacher learning communities: Professional strategies to improve student achievement. New York: Teachers College Press.

Mertens, D. (2003). Mixed methods and the politics of human research: The transformative-emancipatory perspective. In A. Tashakkori & C. Teddlie (Eds.), Handbook of mixed methods in social and behavioral research (pp. 135-165). Thousand Oaks, CA: Sage.

Millett, C. M., Payne, D. G., Dwyer, C., Stickler, L. M., & Alexiou, J. J. (2008). A culture of evidence: An evidence-centered approach to accountability for student learning outcomes. Princeton, NJ: ETS.

Millett, C. M., Stickler, L. M., Payne, D. G., & Dwyer, C. A. (2007). A culture of evidence: Critical features of assessments for postsecondary student learning. Princeton, NJ: ETS.

Mitescu, E., Ludlow, L., Pedulla, J., Cochran-Smith, M., Cannady,

M., Chappe, S., et al. (2009). Building an institutionspecific higher education accountability system. Paper presented at the annual meeting of the American Educational Research Association.

Moss, P. (2007). Evidence and decision making, the 106th yearbook of the National Society for the Study of Education (Pt. I). Chicago: National Society for the Study of Education.

Moss, P., & Piety, P. J. (2007). Introduction: Evidence and decision making. In P. Moss (Ed.), Evidence and decision making, the 106th yearbook of the National Society for the Study of Education (pp. 1-14). Malden, MA: Blackwell.

Murray, F. (2000). The role of accreditation reform in teacher education. Educational Policy, 14(1), 40-60.

Murray, F. B. (2005). On building a unified system of accreditation in teacher education. Journal of Teacher Education, 56(3), 307-317.

Pedulla, J., Mitescu, E., Jong, C., & Cannady, M. (2008, March). Observing teaching for social justice for teachers from two pathways. Paper presented at American Educational Research Association Annual Meeting, New York.

Pedulla, J., Salomon-Fernandez, Y., Mitescu, E., Jong, C., & Cochran-Smith, M. (2007, April). Lessons learned from a study comparing classroom practices and pupil learning for teachers from two pathways into teaching. Paper presented at American Educational Research Association Annual Meeting, Chicago.

Phillips, D. C. (2007). Adding complexity: Philosophical perspectives on the relationship between evidence and policy. In P. Moss (Ed.), Evidence and decision making, the 106th yearbook of the National Society for the Study of Education (pp. 376-402). Malden, MA: Blackwell.

Sarason, S. (1971). The culture of schools and the problem of change. New York: Teachers College Press.

Sarason, S. (1996). Revisiting "The culture of the schools and the problem of change." New York: Teachers College Press.

Sawada, D., Piburn, M., Falconer, K., Turley, J., Benford, R., Bloom, I. (2000). Reformed teaching observation protocol. Available from http://physicsed.buffalostate.edu/pubs/RTOP/RTOPform_IN001. pdf

Spillane, J., & Miele, D. (2007). Evidence in practice: A framing of the terrain. In P. Moss (Ed.), Evidence and decision making, the 106th yearbook of the National Society for the Study of Education (pp. 46-73). Malden, MA: Blackwell.

Sullivan, W. (2000). Institutional identity and social responsibility. In T. Ehrlich (Ed.), Civic responsibility and higher education. Phoenix, AZ: Oryx Press.

Trinder, L. (2000). A critical appraisal of evidence-based practice. In L. Trinder & S. Reynolds (Eds.), Evidence-based practice, a critical appraisal (pp. 212-241). London: Blackwell Science.

Wood, D. (2007). Teachers' learning communities: Catalyst for change or a new infrastructure for the status quo? Teachers College Record, 109(3), 669-739.

Author Biographies

Marilyn Cochran-Smith is the Cawthorne Professor of Teacher Education for Urban Schools and Director of the Doctoral Program in Curriculum and Instruction at the Lynch School of Education at Boston College. She is a member of the National Academy of Education and a former President of AERA. Cochran-Smith is coeditor of Studying Teacher Education: The Report of the AERA Panel on Research and Teacher Education, co-editor of the Third Handbook of Research on Teacher Education, and co-author of Inquiry as Stance: Practitioner Research for the Next Generation. Cochran-Smith was editor of the Journal of Teacher Education from 2000-2006.

The Boston College Evidence Team includes Lynch School of Education faculty and doctoral students from two departments– Curriculum and Instruction (C&I) and Educational Research, Evaluation and Measurement (ERME) –as well as administrators from the Office of Practicum and Induction. C&I faculty and students are primarily involved in research related to curriculum, teaching, and teacher education while ERME faculty and students study assessment, evaluation, and measurement. The team has a number of co-authored publications related to the project described in this articles as well many individual publications. (See Footnote #1 for a full list of the members of the Evidence Team.)