Approaching the Scholarship of Teaching and Learning

Pat Hutchings
Senior Scholar, The Carnegie Foundation for the Advancement of Teaching

THE CASES THAT CONSTITUTE THIS VOLUME represent work in progress by faculty selected as Carnegie Scholars with the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL). Each of the eight authors tells the story of her or his efforts at "opening lines" of inquiry into significant issues in the teaching and learning of the field. In particular, their accounts focus on the *doing* of this kind of investigative work—that is, on methods and approaches for undertaking the scholarship of teaching and learning.

A key principle of this volume is that there is no single best method or approach for conducting the scholarship of teaching and learning. Indeed, the cases illustrate a need for approaches that are useful and doable in the varied contexts represented by their authors. Mills Kelly, for instance, explores questions about teaching and learning at a large public research university; Donna Duffy undertakes her investigation in the quite different setting of a community college. Both public and private institutions are represented; several are urban, one is Catholic, and another, Spelman, is an historically black college for women. The authors' fields are diverse as well, including humanities, social sciences, natural sciences, business, and an interdisciplinary program. Several of the eight are senior faculty, well along in their academic careers; one is not yet tenured. All of these differences play into the way the authors think about and undertake their scholarship of teaching and learning. The desire to illustrate a variety of approaches, and to preserve the contexts and particulars of their use, underlies our decision to build this volume around cases. Cases capture details and differences.

But readers will find common themes as well. The cases were developed through a process designed to reveal aspects of the scholarship of teaching and learning that crosscut contexts and fields. This process began with two-hour phone interviews, conducted by me with each of the authors. The interview was turned into a rough transcript, which the author then reworked around a set of common topics or questions that emerged as the interviews were undertaken, and which appear as more or less standard headings in the finished cases collected here. For instance, all of the authors describe the process of formulating their question or questions. Each also describes the investigative strategies he or she considered using, how choices were made among these, how the various approaches worked or didn't, and what was learned from doing the work. In a final section

of each case, the author offers advice to faculty newly undertaking the scholarship of teaching and learning. Our hope is that by organizing the cases around a set of standard elements we have made it easier for readers to extract transferable lessons and themes they can apply in their own work.

As a further aid to this task, an accompanying CD-ROM provides additional information and resources. For instance, Dennis Jacobs talks, in his case, about a focus group protocol he adapted and used as part of his study of at-risk students in chemistry; that protocol appears in the "analytical tools" section of the CD-ROM, where it can be accessed, adapted, and used by readers. Additionally, the CD offers samples of student work, artifacts such as syllabi and exams, and links to electronic course portfolios as well as leads to further resources relevant to "how to" questions.

The "opening lines" of the volume's title point to the process of undertaking inquiry. The phrase has another meaning, as well. The work reported in this volume is (or was at the time of writing) work that is at its *opening*, if you will, rather than its *closing* stage. Each case includes a section on emerging conclusions, but these are typically preliminary (though the CD-ROM includes more information of this kind for some of the cases, and all of the authors are writing and speaking about their work in other forums as findings emerge more firmly). The purpose here, in this volume, is to feature work at a fairly early stage—early in the particular investigation reported but also, for many of the authors, early in the experience of a scholar who is a relative newcomer to this kind of work and therefore learning from the process as it unfolds. As will be clear, many of the authors are actively thinking about where this work will take them next and how—or whether—it might find a more central place in their career trajectory.

This book represents "opening" work, too, in the larger sense that the scholarship of teaching and learning is not yet fully defined or conceptualized, making this an important time to examine emerging practices. We are lucky to have practitioners willing to go public at this stage so that the field can learn from their successes as well as from the challenges they face.

What can be learned from the case authors' work? Because the impetus for this volume is the need expressed by growing numbers of faculty for concrete, practical guidance about designing and conducting the scholarship of teaching and learning, the authors have provided a good deal of concrete, practical detail—about how to use a focus group, for instance, or ways to work with colleagues as co-investigators. In contrast, the purpose of this introduction is not to compile their suggestions but to set forward several larger themes reflected in the eight cases—themes that help build the conceptual and theoretical foundations needed for the practice of the scholarship of teaching and learning.

An Ethic of Inquiry

The opening section of each case focuses on the genesis and shaping of the question or questions the scholar wishes to examine. Indeed, this opening section is one of the longest in many of the cases, which speaks both to the difficulty of this first stage of work *and* to its usefulness as a window into the character of the scholarship of teaching and learning. How does it emerge as a practice? Why would an already too-busy faculty member want to do it?

Based on the cases, one answer is that the scholarship of teaching and learning often begins in quite pragmatic questions. Cindi Fukami explains the source of her question by telling the story of the wood cutter who never found the time to sharpen his saw and therefore wasted both time and energy. That,

says Cindi, was the predicament in the MBA program at the University of Denver, where she and her colleagues had been employing a group-project assignment (a central element of a central course in the curriculum) that was clearly in need of "sharpening." The scholarship of teaching and learning provided the context to turn this sticking point into an opportunity for purposeful experimentation and study.

What's notable, however—in Cindi's case and others—is that the decision to examine an aspect of practice in a new way was not only a practical one but one with a deeper motivation as well. Continuing with an assignment that did not serve student learning had simply become untenable for Cindi; it didn't feel right. Similarly, for Dennis Jacobs the decision to examine the impact of an alternative section of General Chemistry began with his realization that students who could not succeed faced permanent roadblocks to next stages of their college work and career ambitions. "My empathy went to these students," he writes, "and I felt a responsibility to address what I saw as an injustice." Donna Duffy tells the story of wanting to find a better way to teach abnormal psychology to students who were already, in many ways, working against the odds. "Abnormal psychology is mostly about the *problems* that people face," she writes, "and to counter that I tried organizing the course around the more positive concept of resiliency. … It's a more hopeful and hope-giving version of the course." As these and other cases in this volume illustrate, the shaping of a good question for the scholarship of teaching and learning is not only a practical and intellectual task but often a moral and ethical one as well.

Asking the right question can also mean a radical shift from usual practice. In an essay that has become a sort of seminal text for CASTL, Randy Bass, a faculty member in American Studies at Georgetown University and a 1998 Carnegie Scholar, writes:

> One telling measure of how differently teaching is regarded from traditional scholarship or research within the academy is what a difference it makes to have a "problem" in one versus the other. In scholarship and research, having a "problem" is at the heart of the investigative process; it is the compound of the generative questions around which all creative and productive activity revolves. But in one's teaching, a "problem" is something you don't want to have, and if you have one, you probably want to fix it. Asking a colleague about a problem in his or her research is an invitation; asking about a problem in one's teaching would probably seem like an accusation. Changing the status of the problem in teaching from terminal remediation to ongoing investigation is precisely what the movement for a scholarship of teaching is all about. How might we make the problematization of teaching a matter of regular communal discourse? How might we think of teaching practice, and the evidence of student learning, as problems to be investigated, analyzed, represented, and debated? (1, included on the CD-ROM)

The reports in this volume are cases of this process of posing problems, of making publicly problematic the important work of teaching and learning. They show us what it means to take seriously our professional responsibility as scholars to examine that work and to share what we discover and discern.

In the final "lessons learned" section of his case, Bill Cerbin puts it this way: "Like all forms of scholarship, the scholarship of teaching has to be motivated finally by personal commitments. … The wrong reason to do the

scholarship of teaching is because it's now listed in the criteria for promotion and tenure; that's a formula for turning important work into just a job, one more hurdle or task. I think there's an important message here about passions, and pursing ideas that really matter to you."

A Taxonomy of Questions

Every scholarly and professional field is defined in part by the questions it asks. It is useful, then, to examine the kinds of questions that characterize the scholarship of teaching and learning. The eight cases collected here help to elaborate a taxonomy of questions that has been emerging through the work of the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL booklet, 5).

One kind of question is about "what works." Not surprisingly, this is where many faculty begin—seeking evidence about the relative effectiveness of different approaches. ("What works" questions in the scholarship of teaching and learning are cousins, it might be said, to the assessment movement—though for many faculty assessment comes with a hard "prove it" edge that is quite different from the "ethic of inquiry" adduced just above.) Mills Kelly, for instance, traces his scholarship of teaching to a question from his department chair, who asks whether students in Mills' Web-based history course are learning more than they would in traditional print-based versions of the course. This is, Mills realizes, a "wonderful question" that he himself has not asked, and he sets out to answer it. Dennis Jacobs, similarly, began his investigation with a desire to know more about the effectiveness of an alternative design for the general chemistry course at Notre Dame. Indeed, for both Mills and Dennis the power of the "what works" question lies, in part, in the fact that such questions are *shared*—by Mills' chair, and, in Dennis' situation, by colleagues who want to know what works and how, therefore, to invest limited departmental resources. In short, the "what works" question is often one that has a ready audience, an element much to be wished for in this and other forms of scholarship, and one that is most usefully considered in the original framing of the question rather than as an afterthought.

A second kind of question focuses on "what is." Here the effort is aimed not so much at proving (or disproving) the effectiveness of a particular approach or intervention but at describing *what it looks like*, what its constituent features might be. Investigations of this descriptive type might, for instance, look at the dynamics of class discussion around a difficult topic; they might be efforts to document the varieties of prior knowledge and understanding students bring to a particular topic or aspect of the discipline. Among the eight cases collected here, Sherry Linkon's is perhaps the clearest illustration of the "what is" type. Her aim, as she tells us, is to understand interdisciplinary courses from the students' point of view—an antidote to the usual focus on the experience of the teacher. "People [in my field] have published a lot of teaching stories—wherein the teacher tells about what she taught, how she taught, what happened, and how the students liked it. These are wonderful stories, but they don't necessarily get us to a deeper understanding of what's going on for students." Sherry thus sets out to describe and systematically analyze the student experience of interdisciplinary courses in her program at Youngstown State. This topic is being explored by several other Carnegie Scholars as well, and Sherry sees as a next step in her work collaboration and data sharing through which their respective findings can be tested and refined across settings.

The "what is" question is closely related to a third type, which Lee Shulman calls "visions of the possible." Mona Phillips' work exem-

plifies this category. She begins with a question about how her sociology students understand and engage in the process of theorizing (as opposed to their knowledge of particular theories) but, as she describes in the initial section of her case, she becomes increasingly focused on fostering "an emotional dimension of learning," which she speaks of as joy. "I want to understand more about how I can help students see themselves as part of the wonderful process of understanding the world around them and their position in it." To create (and examine) a course with this kind of goal—a goal, as she notes, that many sociologists would not endorse or embrace—is indeed to commit to and enact a vision of the possible. It recalls Bill Cerbin's point, quoted above, about the origin of this work in personal passions.

Mariolina Salvatori, too, illustrates the kind of inquiry that begins with a vision of the possible. In her case the context is an English classroom in which students' "moments of difficulty" are seen and treated not as shortcomings or deficits (the student does not understand the final couplet of the poem because she's just not smart enough) but as opportunities for learning. Indeed, Mariolina sees such moments as windows, often, into defining elements and issues in the particular text or even the larger content of the discipline; that is, difficulties can be used to uncover what is most essential to understanding.

But Mariolina's work also illustrates a fourth type of question, which is not so much exploring an aspect of practice as it is formulating a new conceptual framework for shaping thought about practice. This type of question is, thus far in the scholarship of teaching and learning "movement," underrepresented. That's too bad because—as is illustrated by Mariolina's collaboration with colleagues (Mills Kelly is one of them) who are adapting her framework to other disciplines—new models and conceptual frameworks generate new questions that can, in turn, enrich the scholarship of teaching and learning and extend its boundaries.

Bill Cerbin agrees. Noting that faculty interested in problem-based learning (the topic of his study) may find clues to practice in what he has done, he nevertheless anticipates that the greater contribution, in the long run, may lie in "some useful theoretical distinctions both to the concept of learning with understanding and also to teaching for understanding. A global idea that comes out of this investigation is how important it is to understand why some things are hard for students to learn." This kind of theory building, Bill argues, is an important element of the scholarship of teaching and learning.

It is important to note that these four types of questions are by no means mutually exclusive. As noted, Mariolina's work spans at least two of the categories. Dennis Jacobs started with a "what works" question but later added a more process-focused dimension to his investigation, looking not only at impact and effectiveness but (using videotapes of student cooperative-learning groups as well as focus groups) at understanding more deeply *what is* happening in the course. Sherry Linkon begins with a "what is" question about her students' experience of interdisciplinary teaching and learning but she soon finds herself "doing a lot of playing around" with questions (perhaps this is a fifth type) about methods of inquiry, noting, "I saw this as a chance not only to learn more about interdisciplinary studies but also to explore methods for understanding more about the student learning process. Part of my goal is to experiment with different approaches, to see whether I like them, to see what I get from them."

Finally, it should be noted that the taxonomy of questions described here is only one model. Craig Nelson, a biologist from Indiana

University and a 2000 Carnegie Scholar, recently developed a document (included on the CD-ROM) of "selected examples of several of the different genres of the scholarship of teaching and learning," which he defines in large part by unit of analysis: reports on particular classes, reflections on many years of teaching experience, and summaries and analyses of sets of prior studies. Craig entitles his document "How Could I Do the Scholarship of Teaching and Learning?" and his title speaks to the value of such efforts at classification, part of which is to put forward possibilities and encourage practice of different types. Additionally, this kind of mapping of the field may be helpful in showing how various instances of the scholarship of teaching and learning connect, where the lines of relationship lie, where there are gaps that need to be filled.

Thinking about Methods

A central focus of this volume is, of course, methods. And a central lesson about methods leaps immediately out of the details: that a mix of methods will tell you more than a single approach. Looking *across* the eight cases we see a rich array of possibilities for gathering and analyzing evidence: course portfolios, the collection and systematic analysis of student work (often by secondary readers, sometimes with newly developed rubrics), videotape, focus groups, ethnographic interviews, classroom observation, large-scale longitudinal tracking, questionnaires, surveys, and more. And *within* each individual case we see the variety of ways these approaches can be combined in order to give the fullest possible picture.

On the one hand this methodological pluralism (within and among projects) is common sense. Teaching and learning are complex processes, and no single source or type of evidence can provide a sufficient window into the questions we most want to explore. Indeed, as Craig Nelson points out, "Learning and teaching are complex activities where approximate, suggestive knowledge can be very helpful, and, indeed, may often be the only kind that is practical or possible." But faculty new to this work are likely to begin with a more limited set of methodological possibilities, recognizing the need for a larger and more varied set only as the investigation unfolds. For many such faculty, this means becoming familiar with approaches that are totally new and even against the grain, a process (as the case authors make clear) that can be both exciting and intimidating.

What is also clear is the power of the disciplinary context in shaping the way faculty think about and design their approaches to the scholarship of teaching and learning. Mary Huber, a senior scholar at the Carnegie Foundation, has been exploring disciplinary styles as part of her work with CASTL, and her paper on the topic has prompted vigorous discussion among Carnegie Scholars and other faculty interested in the scholarship of teaching and learning. The cases here further illustrate many of her points.

Mills Kelly, for instance, talks about methods in what is essentially a homecoming story. Early in his work, he tells us, he found himself casting about, trying to figure out how to do this thing called, somewhat dauntingly, "the scholarship of teaching and learning." Behaving like a good historian, he went to the library and began reading about the use of multimedia in the teaching and learning of his field; what he found was a body of educational research (mostly *not* focused on history or, indeed, on any particular discipline) employing "a methodology that I knew nothing about—a new language, a use of control groups, a scientific approach." It was not familiar or comfortable ground: "I'm not an educational researcher by training. I'm an historian."

It was only later, when Mills read the work of another historian who had been studying the teaching and learning of history, that he realized the relevance of his own background—that the tools and dispositions of an historian might, that is, stand him in good stead in addressing questions about teaching and learning. His question about recursive reading, for instance, is an historian's question about a process that Mills sees as essential to the doing of history. And his electronic course portfolio can be seen as a kind of *chronicle* of the course, an account of its unfolding over time, with links to relevant artifacts and evidence.

The influence of the discipline on the conduct of the scholarship of teaching and learning is illustrated nicely by Sherry Linkon's case, as well. Noting the need to ask her questions about the student experience of interdisciplinarity "at various levels and in various contexts," she says, "This is very like my process in doing my regular research. I look at different sources and look for patterns of meaning, relationships, and so forth. Sometimes I feel like I'm not getting anywhere because I'm not finding clear answers. Other times I feel like I'm learning a lot despite the fact that I'm not finding clear answers. I'm a humanities scholar, after all. How often do I find really definitive answers on anything?"

Clearly the methods of the scholarship of teaching and learning are shaped by the methods of the disciplines; beginning with those methods is a right idea not only because they are familiar but because they're warranted by scholarly peers who might build on the work. At the same time, one sees in these cases a good deal of methodological borrowing and influence, across fields. Cindi Fukami finds a helpful model in Donna Duffy's use of an external observer in the classroom as a way to give objectivity. Focus groups, a method developed in marketing circles, are employed by Dennis Jacobs, a chemist. Mariolina Salvatori's project design is reshaped by challenges posed by two sociologists who ask questions her colleagues in English probably would not. These cases document the power of methodological conversation and collaboration *across* fields, as faculty borrow approaches and perspectives from colleagues in other areas. Developing a broader, more sophisticated repertoire of methods is clearly one of the challenges facing this work, and a necessary step in advancing the scholarship of teaching and learning as a field.

Common Ground

To examine the questions and methods of the scholarship of teaching and learning is to raise an issue about its relationship to the larger universe of educational research. Generalizing about the difference is difficult, it turns out, because "educational research" encompasses a considerable variety of approaches. See, for example, Lee Shulman's opening chapter in the second edition of *Complementary Methods for Research in Education* where he describes a wide range of work along five dimensions: problems, investigators, methods, settings, and purposes. As he points out, many of the approaches in evidence today could not have been foreseen a decade ago. Moreover, many of the methods he describes overlap with those described in this volume as examples of the scholarship of teaching and learning. It is useful, nevertheless, to identify the features that characterize the scholarship of teaching and learning. What do the eight cases tell us in this regard?

First, the scholarship of teaching and learning is deeply embedded in the discipline; its questions arise from the character of the field and what it means to know it deeply. Thus, Mona Phillips describes her investigation as follows: "I'm trying to describe as fully as I can a new way of thinking of my field and what it means to teach in keeping with that

transformed view." Similarly, when Donna Duffy redesigns an abnormal psychology course around the concept of resilience, she is working out of a concept in her field, redefining an aspect of its teaching and learning. When Mills Kelly asks about students' habits of recursive reading he is asking an historian's question. Mariolina Salvatori's interest in moments of difficulty reflects, she tells us, the field's (and her own) theoretical conception of reading and interpretation.

Second, the scholarship of teaching and learning is an aspect of practice. In contrast to research done by a "third party" examining the practice of others, this is work, if you will, "in the first person," undertaken by faculty looking at their own practice (and sometimes the practice of colleagues with whom they teach or share curricular responsibility). Indeed, for some of the case authors, the scholarship of teaching is hard to distinguish from teaching itself. It's not just *about* one's teaching; it is an element within teaching, hard to separate out. Mariolina Salvatori's "difficulty paper" is, for instance, a central element of her teaching rather than a special "intervention." Similarly, Mona Phillips' investigation relies on regular activities of the course, including student papers and the "ideas assignment." Mona talks, too, about how her investigation changes the role of students, making them more active agents in shaping and examining the processes of teaching and learning. Indeed, the involvement of students in the doing of the scholarship of teaching and learning—as co-investigators and agents, rather than as objects—is a theme that has arisen in CASTL's Campus Program (Cambridge). As Mona also points out, the work entails a kind of "going meta," a different way of looking at the activities in which she and her students engage as the course unfolds. Stephen Fishman and Lucille McCarthy (in a wonderful book-length account of their collaboration and development as scholars of teaching) describe the challenge of a process that "requires faculty to disengage from their normal activities, change their usual professional gaze, and view their classrooms in a highly reflexive way" (27).

In this sense, the scholarship of teaching and learning entails a challenge that several of my Carnegie Foundation colleagues working with CASTL call "the moving target" and that Bill Cerbin speaks of as a "changing script." "In reality," Bill writes, "I was teaching this class *as* I was experimenting with it and studying it, and under those conditions you sometimes *have* to change the script as you go because your best judgment tells you that a change would be an improvement for the students." For some, this may imply that the scholarship of teaching and learning is less systematic or rigorous than other forms of scholarly work. In fact, Bill's account of having to "change the script as you go" is offered by way of explanation for not being able to conduct full-fledged "design experiments"—an approach he aspires to in subsequent stages of this ongoing work. But for Mona Phillips this need to "strike a balance between rigor and flexibility" and to let the investigation "unfold and take shape as the course itself, as well as the students' experience, unfolds and takes shape" is part of the power of the scholarship of teaching and learning.

Finally, the scholarship of teaching and learning is characterized by a transformational agenda. One of CASTL's publicly stated goals is to foster "significant long-lasting learning for all students" (CASTL booklet, 3), and the desire to create stronger curricula and more powerful pedagogies runs through all the cases in this volume. The scholarship of teaching and learning might then be defined as scholarship undertaken in the name of change, with one measure of its success being its impact on thought and practice.

What then is the difference between the scholarship of teaching and learning and other

forms of educational inquiry? To what extent do the features described above characterize a distinctive field of investigation? My colleague Mary Huber recently shared with me an email message from a mathematician who asked the question this way: "What *exactly* is the difference between the kind of work being done by someone like Alan Schoenfeld [a faculty member at the University of California–Berkeley and recent president of the American Educational Research Association] and what Carnegie is promoting as the scholarship of teaching and learning?" Mary's response is, I believe, congruent with the characterization put forward above, but she makes a wider point as well, worth quoting in full:

> I have always seen the scholarship of teaching and learning as a broad canopy, under which a wide range of work could thrive. This could include work of the kind Schoenfeld and his educational research colleagues do, the work most Carnegie Scholars are doing, but also the work that scholarly teachers are doing when they make inquiries into their classroom practice, document their work, and make it available to peers in relatively informal settings (the brown-bag lunch, for example). The innovation here is to invite regular faculty, and not only education specialists, to see this kind of inquiry as a regular aspect of their work as professors. For purposes of faculty evaluation, the most elaborate work (the Schoenfeld kind) might be presented as scholarship of discovery (i.e., research), and the least elaborate as a form of reflection on teaching and learning (i.e., teaching). Those working the middle range could go either way. And naturally, any one person might over a span of time engage in different ways.

As this introduction makes clear, we are increasingly able to characterize the scholarship of teaching and learning both in terms of concrete examples and more general, distinguishing features. As Mary's comment eloquently suggests, the point of doing so is not to choose camps but to find common ground; to bring the energy and intellect of more people, from various communities and traditions, to bear on important educational issues.

Indeed these communities (or rather, these types of work, since one person may do different things at different points) enrich one another. The scholarship of teaching and learning may open up new questions that, over time, prompt major new lines of educational research. Educational research may suggest models and strategies that can be explored in the scholarship of teaching and learning and in scholarly teaching practice. What CASTL aims to do is to foster forms of reflection and inquiry that can make the most of these opportunities and intersections.

In this spirit, it's important to conclude this introduction by noting that the eight Carnegie Scholars who have here generously opened their work to public view are part of a growing community of scholars. They draw on and acknowledge one another's work and the work of the much wider circle of faculty participating in CASTL. They both benefit from and contribute to changing conditions on campuses that can make the scholarship of teaching and learning (and its various cousins and relations, whatever they're labeled) more central and valued—an outcome supported as well by the efforts of scholarly and professional societies that have been working to give prominence to teaching. There is, in short, a larger and very lively ecology around the cases that follow here. In a closing chapter, Lee Shulman reflects on the longer-term prospects for that ecology. But first the cases …

REFERENCES AND RESOURCES

Bass, Randy. "The Scholarship of Teaching: What's the Problem?" *Inventio* 1.1 (1999). 18 August 2000 <http://www.doiiit.gmu.edu/Archives/feb98/randybass.htm>.

Cambridge, Barbara. "What Is the Scholarship of Teaching and Learning?" *AAHE Bulletin* 52.4 (1999): 7–10.

The Carnegie Academy for the Scholarship of Teaching and Learning. Informational program booklet. Menlo Park, CA: The Carnegie Foundation for the Advancement of Teaching, 1999.

Fishman, Stephen M., and Lucille McCarthy. *Unplayed Tapes: A Personal History of Collaborative Teacher Research*. Urbana, IL: National Council of Teachers of English, and New York: Teachers College Press, 2000.

Huber, Mary Taylor. "Disciplinary Styles in the Scholarship of Teaching: Reflections on the Carnegie Academy for the Scholarship of Teaching and Learning." *Improving Student Learning: Improving Student Learning through the Disciplines*. Ed. Chris Rust. Oxford: Oxford Brookes U. Center for Staff and Learning Development, 2000.

Nelson, Craig E. "How Could I Do the Scholarship of Teaching and Learning?" Unpublished paper, 2000.

Shulman, Lee S. "Disciplines of Inquiry in Education: A New Overview." *Complementary Methods for Research in Education*. 2nd ed. Ed. R. Jaeger. Washington, DC: American Educational Research Association, 1997. 3–30.