

CHAPTER 1

Pedagogical Content Knowledge circa 1907 and 1987: A Study in the History of an Idea (2001)

Introduction

Since the 1980s in the United States teacher education has undergone consistent scrutiny and frequent attack by politicians and policy makers concerned with the quality of public education. Responses to these attacks have varied, but generally they have centered on the need to professionalize teaching, including the need to raise academic standards for admission to teacher education and to assure better-quality teacher education. Doubts about the value of teacher education have resulted in the creation of alternative routes to initial teacher certification and in efforts to make a case for teaching as a unique intellectual enterprise involving special forms of knowledge and skill. This chapter is concerned with an aspect of the later issue, of making a case for teaching as involving unique forms of knowledge and of the challenge of teacher educators to make the case convincingly to critics. The focus is on pedagogical content knowledge (PCK). The purpose is to locate weaknesses in the case and in the concept as a basis for considering possibilities. A turn toward the much-neglected history of teacher education in the United States is necessary to accomplish this aim.

Pedagogical Content Knowledge 1987: A Response to the Critics

Following the publication of “Knowledge and Teaching: Foundations of the New Reform” (Shulman 1987), it seemed as though a shift was about to take place in how teacher educators thought about the knowledge base of teaching. In the article Shulman argued for the value of pedagogical content knowledge as the foundation of teacher education: “Pedagogical content knowledge is of special interest because it identifies the distinctive bodies of knowledge for teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for

instruction. Pedagogical content knowledge is the category most likely to distinguish the understanding of the content specialist from that of the pedagogue” (1987, 8). Pedagogical content knowledge is concerned with how teachers reason pedagogically.

The timing of Shulman’s article could not have been better, and quickly pedagogical content knowledge slipped into teacher educator rhetoric. Teacher educators were eager for a more adequate response to the growing criticism of teacher education and for a better means of supporting arguments for teaching as a profession. As Shulman noted, several reports of the period (Holmes Group 1986; Carnegie Forum on Education and the Economy 1986) argued that better schools would follow teacher professionalization. The problem was that the “advocates of professional reform base their arguments on the belief that there exists a ‘knowledge base for teaching’—a codifiable aggregation of knowledge, skill, understanding, and technology, of ethics and disposition, of collective responsibility—as well as a means for representing and communicating it. . . . The rhetoric regarding the knowledge base, however, rarely specifies the character of such knowledge. It does not say what teachers should know, do, understand or profess that will render teaching more than a form of individual labor, let alone be considered among the learned professions” (Shulman 1987, 4).

The attack on teachers and teacher educators was intense, scathing, at the time. Starting with *A Nation at Risk*, “The Commission found that not enough of the academically able students are being attracted to teaching; that teacher preparation programs need substantial improvement. . . . Too many teachers are being drawn from the bottom quarter of graduating high school and college students. The teacher preparation curriculum is weighted heavily with courses in ‘educational methods’ at the expense of courses in subjects to be taught” (National Commission on Excellence in Education 1983, 22). Release of the report was page A1 news across the United States: “Mediocre education puts the nation at risk” (Deseret News, April 30, 1983, A1). Teachers and teacher educators felt the sting and rebuke. Centering its case on the need to professionalize teaching, the Carnegie Forum on Education and the Economy argued in *A Nation Prepared: Teachers for the 21st Century* that standards needed to be raised: “Teacher education must meet much higher standards. The focus must be on what teachers need to know and be able to do. Raising standards for entry into the profession is likely to give the public confidence that the teachers they hire will be worth the increased salary and worthy of the increased autonomy we advocate. These policies will most certainly fail, however, if the education of teachers is not greatly improved. Otherwise, new teachers may be unable to perform up to the new expectations” (1986, 69).

Teacher educators seemed to respond to the challenge to teacher education in *Tomorrow’s Teachers: A Report of the Holmes Group* (1986). The

Holmes Group was no ordinary group of teacher educators: “We write as members of the Holmes Group, a consortium of education deans and chief academic officers from the major research universities in each of the fifty states” (3). Again, the argument was that the solution to the education ills of America was to professionalize teaching. A central component of this effort was to improve the intellectual quality of teacher education. The finger of blame pointed inward: “Unhappily, teaching and teacher education have a long history of mutual impairment. Teacher education long has been intellectually weak; this further eroded the prestige of an already poorly esteemed profession, and it encouraged many inadequately prepared people to enter teaching” (1986, 6). Part of the solution to low status was to do away with all education majors in favor of academic majors and minors for all teachers, elementary educators included. This suggestion was the basis for arguing that a fifth year was necessary for initial teacher licensure. The Holmes Group further argued that methods courses needed to be replaced with subject-specific pedagogical courses: Future teachers need to “study the subjects they will teach with instructors who model fine teaching and who understand the pedagogy of their material” (1986, 16). Thus the stage was set for a reconsideration of the nature of teacher knowledge in the quest for status and security within higher education. Enter PCK. In the broadest outline, this story is an old one of teacher educators responding to perceived threats, as will be discussed in the sections that follow.

Historical Context

During the later half of the nineteenth century and the first quarter of the twentieth, normal schools developed and eventually assumed the major role for educating elementary teachers in the United States. Initially these were narrowly vocational schools, but as demographics changed and expectations for teachers grew, their educational offerings expanded to include greater emphasis on general education and disciplinary knowledge. In many parts of the country, particularly within rural America, normal schools were the only avenue available for education beyond the early grades. At the time colleges and universities had little interest in educating elementary schoolteachers. However, as enrollments in secondary schools exploded shortly after the turn of the century, increasingly university administrators recognized the potential for greater resources and for greater student enrollment if they developed teacher education programs. Reviewing the history of the normal school from a participant’s perspective and as one of its champions, Charles Harper of the State Normal University in Normal, Illinois, wrote of the battle that was waged between normal schools and colleges and universities over teacher education:

“The struggle was purely a defensive one. It was a vigorously fought movement to maintain what had been won—that is, the right to serve the public schools by the preparation of any and all kinds of teachers needed by these schools. . . . The struggle on the part of the teachers colleges was to avoid being sidetracked by the growing power of the state universities and other strong colleges and universities” (Harper 1939, 129–30). The “danger,” he wrote, was that the “newly recognized teachers colleges [that replaced the normal schools] . . . [would end up] aping the liberal arts colleges and thereby los[e] their distinctive characteristics upon which the state teacher-education institutions were originally founded” (ibid.).

Anticipating the criticism of *A Nation at Risk* and *Tomorrow's Teachers*, the attack on normal schools was based on the view that “normals were merely schools of ‘methods’ and did not stand for scholarship” (Harper 1939, 131). On the contrary, Harper argued, the normals emphasized “mastery of subject-matter” [*sic*], second only to the “ideal of social service” (ibid.). What Harper did not say, perhaps because he did not realize it, was that the battle was already lost. Seeking to share responsibility for educating secondary teachers brought with it direct comparison with the academic standards of colleges and universities and, just as Harper feared, an embracing of those standards by teacher colleges inevitably followed.

Pedagogical Content Knowledge at the Turn of the Century

Walter Scott Monroe identified 1907 as a turning point in the history of teacher education, “a ‘banner year’ in the discussion of teacher education” (Monroe 1952, 203). “By 1907 most of the larger institutions and some of the smaller ones had established a ‘department of education’ and in a few cases a college of education” (ibid., 205). Teacher education had achieved a much-welcomed beachhead in colleges and universities. But, Monroe observed, their foothold was tenuous: “The establishment of such provisions for the professional phase of teacher education does not necessarily reflect general approval of including technical-professional study . . . within the work for the baccalaureate degree” (ibid.). Despite the strong support of electives by the Committee of Ten (1894) of the National Education Association (NEA) and of Charles Eliot, committee chair and president of Harvard University, based on the view that most subject areas had disciplinary or liberal education value, education courses remained suspect. Defending the Committee of Ten report, Eliot wrote: “To master one subject so as to be able to give both elementary and advanced instruction in it is for the teacher himself a deep source of intellectual enthusiasm and growth. Real scholarship becomes possible for him, and also a progressive intellectual expansion through life; for only progressive

scholars can maintain for many years the mastery of even a single subject. . . . Toward effecting this great improvement, two important measures are the elevation of normal schools, and the creation, or strengthening, of educational departments in colleges and universities” (Eliot 1898, 331–32). Thus one way of improving the academic preparation of teachers was, according to Eliot, for the nation’s colleges and universities to support teacher education and thereby elevate the quality and liberalize the curriculum.

Several speakers at the 1907 conference of the NEA focused attention on the content of teacher education, specifically secondary teacher education, which was the turf both colleges and normal schools hoped to homestead. Perhaps unwittingly, several of the speakers built upon the view of content introduced by S. S. Parr in 1888, then president of the NEA Department of Normal Schools, at that year’s national convention. Among the qualifications of an effective teacher, Parr argued, was “the teaching-knowledge which is derived from viewing the various subjects in the order fixed for them by their nature and by that of the mind which acquires them” (Parr 1888, 467–68). Parr stated:

An analysis of the process of teaching shows that there is a special knowledge in each subject that belongs to instruction. This is quite distinct from academic knowledge. It differs from it in purpose, in its relation to the facts of things, and in the mode by which it is obtained. The ideas of an academic subject are arranged in an order which is determined by their own relations. The order of the same ideas, when they are arranged for teaching, is determined by their relation to the learning mind. The purpose of academic knowledge is acquaintance with series of beings in the order of the necessary dependence. The purpose of teaching-knowledge is acquaintance with the processes of the learning mind in the order of mastery. (1888, 469)

Thus Parr helped plant the seeds of PCK: “There is a special knowledge in each subject that belongs to instruction.” When ideas are “arranged for teaching [their order] is determined by their relation to the learning mind.” It is John Dewey’s conception of this difference between the logical and the psychological organization of subject matter that is best remembered, not Parr’s. Despite finding support in Dewey’s distinction between the psychological and logical organization of subject matter discussed in *The Child and the Curriculum* (1902), the seeds did not grow. At the time other issues demanded the attention of teacher educators, not the least being the struggle for legitimacy, and the case for legitimacy was to be made in traditional academic terms, not in terms of the uniqueness of the content and task of teacher education. This was no time for a radical idea, one that raised questions about the value of traditional academic studies for teaching.

Several speakers at the 1907 conference addressed the issue of the “professional preparation of high-school teachers.” Many noted that college graduates who lacked pedagogical training did not know how to manage classrooms or work with children effectively. In particular, they “fail to get the pupil’s point of view. They do not,” Straton Brooks, superintendent of schools for Boston, Massachusetts, stated flatly, “see the subject taught as the pupil sees it. A large majority of them give greater attention to the logical development of the subject than to the development of the logical powers of the pupil. This is due to the fact that the training of these teachers has been largely, if not wholly, academic, and that their professional training, if any, has been incidental and superficial. Academic training, as here used, means the study of the subject for the sake of mastering it as a subject in its logical and epistemological relations, while professional training, as here used, means the study of the subject with reference to its adaptability to use as an instrument for developing and training the mind of the pupil. . . . To the extent that academic study of any subject prepares a teacher to use that subject as an instrument of child development it is professional in its result” (1907, 547). Brooks went farther and charged: “Professional training [of this kind] cannot be conducted with any high degree of success under the direct domination and control of the regular college or university faculty. The attitude of the college professor is properly and necessarily academic. His attention both as a student and teacher has been so long turned exclusively to the academic side that the case is rare indeed that he is competent to offer professional instruction of even medium quality, yet he is seldom conscious of this and looks with contempt and suspicion upon the efforts of the department of education to discuss how to teach a subject about which it knows academically so much less than he does; nor does he look with favor upon allowing another department to teach in any way a subject that belongs to his department” (ibid., 551).

The majority of the speakers appear to have agreed with these charges, including George Luckey, professor of education at the University of Nebraska: “Scholarship alone is not sufficient no matter how thoro [*sic*] and extended it may have been.” The teacher, Luckey argued, must know the disciplines from the “learner’s standpoint” as well as the teacher’s (Luckey 1907, 589–90). Most speakers seemed to feel acutely the disdain in which teacher education was held by professors of the arts and sciences, although they noted improvements and gave as evidence the founding of a College of Education that year at Ohio State University and earlier a Department of Education at Harvard University.

Paul Hanus sought a middle position, one consistent with his standing as professor of education at Harvard. Hanus also wanted to professionalize academic content. Following a spirited and detailed argument for scholarly attainment as a basic teaching requirement, including “superior attainments in

some one field of human learning” (Hanus 1907, 564), Hanus stated: “My point is, once more, that the teacher is not merely a scholar, important as scholarship is. To be available for teaching purposes, scholarship must have been acquired or at least overhauled from the teacher’s point of view. The scholar must possess his scholarship in a new way. He must examine it with a view to attaining a clear conception of the *educational resources* of his specialty and an equally clear recognition of its limitations” (1907, 571, emphasis). Hanus’s argument would later be echoed in the first Holmes Group report and would be used to support the view that even elementary education teachers should possess academic majors and minors for teacher certification.

There were dissenters. Frederick Bolton, professor of education at the State University of Iowa and a former normal school faculty member, had no sympathy for the normal school except as a place to train elementary school teachers. Arguing for development of a science of education, Bolton stated:

The high-school teacher needs, above all, a broad outlook upon life, deep and thoro [*sic*] scholarship, and liberality of attitude which is best promoted by the university atmosphere. The normal school, with its ten-weeks’ courses and ceaseless flitting about, its many exercises per day, the constant emphasis upon method rather than content, the excessive attention to the little details such as are largely necessary in training the immature and those who are to deal with details of elementary work, all militate against sound scholarship and liberality of mind. Most normal schools are so organized that students are admitted from the country school. These students are in constant contact with the most advanced. This necessitates leveling down to the plane of the most immature. The only place where the science of education can be adequately taught is in the university or in the few colleges. (Bolton 1907, 611–12)

Bolton looked toward Germany as his model where secondary school teachers were all university trained and where “critical, academic, and professional scholarship are absolute prerequisites to teaching in the secondary schools. No deviations are allowed” (*ibid.*, 615). Certainly there was no “flitting about” in German universities.

Teacher educators were sharply divided. Charles Judd of the University of Chicago saw only danger in allowing normal schools to engage in the education of secondary teachers. Supporting Bolton’s position, Judd argued that it was only in a college setting that intending teachers could master the “higher branches” of the disciplines without which they should not be allowed to teach (Judd 1907, 582). Judd’s position was clear: “The most essential requirement for the preparation of a high-school teacher is elaborate training in the subject to be taught. This should extend into the higher branches of the subject . . . to a sufficient extent to make the student reasonably independent

in his judgement of authorities upon that subject” (ibid., 587). In Judd’s view, high schools and colleges had similar academic responsibilities.

All speakers agreed that high school teachers needed a thorough education in the disciplines, but they disagreed about what this meant and about what institution was in the better position to provide it. Judd and Bolton made the case for the colleges and universities. Joseph Hill, of the State Normal School at Emporia, Kansas, perhaps best articulated the case for the normal school and in so doing presented a view of what the normal school must become if it was to find and then maintain a central place in secondary school teacher preparation.

[The normal school] cannot have a narrow scope or a restricted curriculum. . . . Its work is not primarily the academic preparation of the high-school instructor, tho [*sic*] it can legitimately and must . . . lay an adequate foundation for his pedagogic training. That training it can give in a favorable atmosphere and under conditions that nowhere else exist. The normal school must emphasize thoroughness [*sic*] in academic training. The students need a living contact with the subject-matter of instruction. He must acquire the facts, grasp the import of the principles, see clearly the relations, but before he is prepared to teach, he must not only have been thru [*sic*] a subject, but around it, must have looked down upon it from above and looked back upon it from beyond, must have reviewed it, not as a subject but as a process, must have seen it grow again in his own mind as he would have it grow in the minds of others. . . . It must be at once a school of educational experiment and practice. . . . For such a work the model or practice school is the laboratory. . . . In its own field it must be a field of research, [but] not in all lines of science. (Hill 1907, 717–18)

The views of these and other educators of the time can be placed on a continuum moving from courses taught strictly from a mastery of the discipline point of view, through a middle position where content remains the same but is presented in relationship to instructional problems perhaps through a special methods course, to the view argued by Straton Brooks, that the subject must be learned by the intending teacher but from the viewpoint of how a child best learns. The second but most especially the third position is represented by pedagogical content knowledge, as Shulman argued eighty years later.

At first glance these positions seem to represent differences in institutional affiliation and in self-interest, but this conclusion masks as much as it reveals. The middle position was widely supported, and not only by normal school instructors. Like Paul Hanus of Harvard University, Burke Hinsdale, Professor of the Science and Art of Teaching at the University of Michigan,

championed this position: "The professor also seeks to represent, or at least to illustrate, the method of teaching the subject in the school, commonly dwelling more or less upon the peculiar difficulties that it presents" (Hinsdale 1910, 394). Among teacher educators who supported the middle position were those who sought to develop a science of education composed of instructional practices grounded in what were thought of as the laws of learning. While representing a significant step in the direction of PCK, and as such movement away from the understanding of the disciplines held by content area specialists, those who held this position did not support a full blending of content and pedagogy. Other issues stood in the way of such a radical redefinition of the right relationship between the disciplines and pedagogy, not the least among them being the low status of teacher education generally and the normal schools specifically.

Debate Continues

Debate continued well past the NEA convention of 1907, and new charges against teacher education were added to old ones. Reflecting a growing progressive spirit, Henry Suzzallo of Teachers College, Columbia University, at the 1913 convention charged that "bookishness" was a problem for educators and teacher educators. Those who held tightly to narrow academic purposes stood in the way of educational progress: "Hence the social world moves on, and the profession remains devoted to old knowledge and old needs preserved by the isolation of the school. When at last the school reacts against our over-conservative [*sic*] traditionalism, the schoolmaster's devotions are likely to be caught by a new social demand more forceful than real. . . . The teacher's chief business is to intermeditate between childhood and society. He must get children over into social life successfully else they will be failures. . . . Every teacher must acquire an interest in, and command over, the fundamental problems and purposes of modern social life thru personal contact with, and extensive study of, social affairs" (Suzzallo 1913, 366–67). As Suzzallo argued, new content was required for teachers to perform adequately in addition to what by then was the accepted standard fare: academic courses, history of education, educational psychology or child study, principles of education, special methods, observation, and, increasingly, practice teaching, mostly courses that would gain the begrudging approval of professors in the academic areas.

Despite broad agreement on the general outlines of teacher preparation, the distance between academic and professional courses remained and appears to have widened, as Monroe argued (Monroe 1952, 196). Pedagogical training, while increasingly accepted in colleges and universities, was supplementary, an add-on, to academic preparation. That teacher education was an add-on and

had little if any effect on the work of the academic disciplines made it tolerable to professors in those disciplines. The lines separating pedagogical and academic content were drawn boldly and broadly. The belief persisted almost unchallenged that for secondary teaching, specialized academic preparation was the essential quality: "Graduation from college, which was generally regarded as an essential qualification, insured adequate general education and competent special knowledge of the subjects to be taught" (*ibid.*, 201).

Teacher educators did not argue over the value of academic preparation. Their concern primarily was to establish the academic legitimacy and educational value of pedagogical studies. Most apparently accepted the uncomfortable position of teacher education on college and university campuses. There was remarkably little discussion of the aims of teacher education, something desired by Suzzallo; purposes were taken for granted (see Monroe 1952, 210–12). Only a few teacher educators sought to "professionalize" subject matter, as PCK was then known, and these may not have fully recognized the potential threat of their position to arts and science professors and their conception of teacher education had professionalizing of subject matter been taken seriously. But it generally was not.

After 1907 teacher educators continued periodically to discuss the "professionalization of subject matter," but there is little evidence that the concept was put into practice. Teacher educators were busy seeking to gain status within colleges and universities and working to better secure the position of the normal schools within the wider educational system and to gain greater legislative support and funding (*ibid.*, 228). In a hostile educational environment, normal school educators diligently sought to establish their academic respectability. In so doing they increasingly came to mimic their competitors who greeted the pleas to professionalize content with suspicion and doubt, and in this they were supported by growing numbers of students who enrolled in the normal schools and teachers colleges with no intention of ever teaching. Academic departments like those established on college and university campuses became the norm, and gradually normal schools became teachers colleges that awarded degrees, engaged in research, and competed with established colleges and universities for students and faculty talent. In time, teacher education was marginalized even on former normal school campuses.

A Determined Few

Despite the turning tide, a few teacher educators continued to argue for the professionalization of academic subject matter. One was William Chandler Bagley, professor of education at Teachers College, Columbia University, and formerly a vice president and director of teacher training at Montana State

Normal College. Speaking at the 1918 NEA convention, Bagley stated that he was “thoroly convinst [*sic*] that the sooner [educators] abandon the unfortunate distinction between the academic and the professional the better it will be for the welfare and ultimate success of our cause. That a house divided against itself cannot stand is as true of professional education as it is of government” (Bagley 1918, 230). He went on to describe what he thought necessary to reform normal schools, and thereby to reform teacher education:

The normal school of the future will lay much greater emphasis upon subject-matter courses than it has done in the past and relatively less emphasis upon detach [sic] and formal courses in psychology and educational theory . . . what I have in mind . . . is a rather fundamental reorganization of all our work with the professional end constantly in view. Everything that goes into the teacher-training curriculum should be admitted solely upon the basis of its relation to the equipment of the successful teacher. It must include scholarship of a very high order, but a unique quality of scholarship. Not only must the teacher know his subject, but, as we have said so often in defending the normal school from its critics, he must know how to adapt his subject to the capacities and needs of those whom he is to teach. . . . [Courses] are selected and taught with reference to the light that will throw upon the high-school teacher's problem. . . . Instead of holding a proud aloofness from the elementary- and high-school classes, the subject-matter instructor will be compelled by the very nature of his work to keep in the closest possible contact with the training school. . . . [This] will do away very largely with the need of separate and often quite detach [sic] courses in “special methods.” . . . I have said that we should reorganize our professional work so that its general procedure will be from practice to theory, from cases to principles, from the concrete to the abstract, rather than the reverse. . . . [The] teacher must have scholarship of a high grade but of a unique quality. This the professionalized subject-matter courses should furnish. (Bagley 1918, 230–33)

Later, Bagley succinctly restated his position in *The Professional Preparation of Teachers for American Public Schools*, a report written for the Carnegie Foundation for the Advancement of Teaching: “Mastery of method in a given material is after all little more than a clear consciousness of the way in which the material shapes itself most advantageously to the learner” (Learned and Bagley 1920, 231).

By this time, Bagley's was increasingly a lone voice. The National Survey of the Education of Teachers, published in 1933, “did not result in the impression that there was wide acceptance of the theory of professional treatment of subject matter, and an attempt to identify the ‘concrete ways’ of professionalizing the courses was not successful” (quoted in Monroe 1952, 303).

Normal school presidents had anxiously sought the power to prepare secondary teachers, and they gained it, but at the cost of the uniqueness of their institutions (see Hall-Quest 1925). Nevertheless, criticism persisted. Doubts remained about the quality of the academic preparation of teachers, and concern was expressed that even when teachers appeared to have adequate academic preparation there was a tendency among school administrators to place teachers in subject areas they did not study (Douglas 1935).

Then and Now: What Happened to PCK?

The first attempts to create pedagogical content knowledge as a central component of teacher education, to professionalize subject matter, as Bagley characterized the challenge, failed for a variety of reasons, political, sociological, and conceptual. The second attempt may fail as well for similar reasons. Whether housed in a normal school, a teachers college, a liberal arts college or a university, professors of education felt vulnerable and enjoyed little status. Then, as now, they struggled to establish the legitimacy of their interests and the value of their contributions to students. Many institutions lacked a critical mass of teacher educators sufficient to marshal any sort of challenge to established views of learning to teach. Then, as now, even within the community of teacher educators, greatest status accrues to those who, as Goodlad (1990) has argued, distance themselves from the schools and from teaching practice. Such persons are historians, psychologists, anthropologists, and sociologists who happen to have an interest in education or schooling and are housed within education faculties. Sadly, curriculum studies is gradually becoming cultural studies on major research campuses across America, and curriculum issues have been given over to other concerns, critical pedagogy, for example. Emphatically these professors do not characterize themselves as teacher educators, who are to be avoided. Then, as now, the courses of these professors mimic those offered by their colleagues in the academic departments. The gulf Bagley wanted to bridge between academic and professional courses largely remains, and teacher educators are still divided.

The politics of higher education and the internal politics of teacher education doomed the first effort. Political issues remain lively and have become increasingly complicated as the playing field has shifted toward governor offices, state legislatures, and federal agencies quite unlike the commissions of the NEA that were dominated by educators, not businessmen and politicians. Teacher education remains in ill repute, but growing disillusionment with public education and the frequency with which teacher educators' interests now conflict with public educators' as both struggle for adequate funding

makes it no longer possible to take comfort in being allies as when Brooks stood and argued the cause of teacher education at an NEA convention.

There are important differences, however. Teacher education now represents a sizable, if not entirely well-respected, research enterprise. Some 1,300 institutions of higher education educate teachers. While some teacher educators express fear about the future of teacher education, not wholly unlike that common to an earlier era, and threats persist, organizations have been developed since Bagley wrote that are politically skillful and heavily invested in issues important to teachers and teacher educators. These organizations and the teacher education institutions and faculty housed in higher education that support them sustain efforts to develop and extend the knowledge base of teaching which, although underappreciated, has grown dramatically since the publication of *A Nation at Risk*.

The pressures on teacher education are both new and old, and together they created the conditions necessary for a resurrection of the idea of professionalizing content knowledge, of pedagogical content knowledge. Currently the challenge to teacher educators is both to meet standards established by the disciplines and their sponsoring associations, and standards established by powerful political bodies to provide evidence that what we do actually makes a difference for teachers and for student learning. These pressures also are internal to teacher education. The claim that teacher education makes a difference was a claim that at least teacher educators at the turn of the century generally could take for granted. They were certain what they did made for better teachers. But no such confidence now exists, and a convincing case has become increasingly more difficult to make, even as it has become more urgent. Evidence of improved teacher performance is required, and arguing for program quality based upon teacher education inputs will simply not do, thus the question: What is it that teacher educators do that no other group can do? We have almost come full circle.

In substance, Bagley's argument is Shulman's (see Randolph 1924). There is a unique content to teacher education, one that despite persistent claims to the contrary reaches beyond standard academic courses—even when coupled with special methods course add-ons—and touches the very heart of the question of what it means to know a subject so that one can teach it. But what does this assertion mean? What is pedagogical content knowledge? Perhaps the central difficulty facing the effort to professionalize subject matter is not so much political or sociological but conceptual. A few years ago Gary Fenstermacher addressed this point: "Although Shulman and his colleagues clearly focus on the topic of teacher knowledge in ways that have deepened our understanding of the interconnections between content knowledge and pedagogical knowledge, their epistemological framing is difficult to isolate and analyze" (Fenstermacher 1994, 16). He asks, just what kind of knowledge

is PCK? He concludes that it has both practical and formal elements, each requiring testing and justification (ibid., 32, 38); the practical challenge is to provide “good reasons” for acting and in support of claims for knowing (ibid., 44). Unfortunately, he argues, the “exquisite complexities of knowledge claiming and justifying in the domain [of practice has not been] fully appreciated” (ibid., 41). Nevertheless, he suggests, there may well be a “science for the advancement of practical knowledge as there is a science for the advancement of formal knowledge” (ibid., 36).

Having both practical and formal knowledge elements is a source of much mischief and confusion. The formal elements come into teacher education in the form of propositional knowledge, lists of sorts, of common subject area misconceptions held by teacher education students and pupils that need correcting, what Randolph (1924) described as “recurring difficulties” (156), and suggestions of ways to make a particular subject more accessible for learning. In contrast, practical knowledge is highly context dependent. Thus beginning teachers may be taught a set of strategies, stories, and forms of representation for a content area that may or may not resonate with the context within which they will eventually teach. The danger, then, is that the ideas become “inert,” as Whitehead (1929/1961, 13) described such knowledge, and courses that presumably focus on pedagogical content knowledge fall victim to the same charges of irrelevancy as courses in the disciplines and traditionally taught special methods courses.

It is likely that it is this conceptual problem and the reliance on propositional forms of knowledge as the basis of claims for the professional legitimacy of the knowledge base of teaching that has relegated PCK to teacher educator rhetoric and limited its influence in practice. One wonders if the second round of interest in PCK will follow the first into oblivion. I hope not. Recognizing the challenges to teacher education that the practical dimension of PCK presents perhaps points to a partial solution. Much of the work to build teacher pedagogical content knowledge must take place in service, within a teaching context. As long as the focus is primarily on preservice teacher education, it is likely that comparatively little can be accomplished. It is within in-service education that Fenstermacher’s argument for practical reasoning as a form of teacher education is compelling. Teachers need help to think more complexly about their practice and the reasons behind their actions in light of how particular pupils learn and in relationship to formal, academic knowledge. Preservice teacher education has a place, however. Edgar Stones (1992) has made a compelling case for engaging teacher education students in the study and practice of learning theory. Such knowledge, formal in form, can serve as a basis for reasoning practically and represents the middle position noted earlier.