In 1997, the University of Chicago closed its education department. The news was
greeted with dismay by faculty in other education departments throughout the coun-
try, largely because the University of Chicago’s education department has played
such a visible and important role in our history. But it is not clear whether anyone
else noticed, or at least cared. These other responses, of people outside of education
departments, are more important, for they indicate the extent to which education is
considered to be a legitimate field of study in higher education.

A central issue in arguments about whether education programs should exist is
whether they provide warranted and useful knowledge. Like most programs in high-
er education, education programs are maintained under the premise that they provide
a body of knowledge that is (a) empirically justifiable, and (b) valued by someone—
in this case, it should be valued by education practitioners. Consistent with this
premise, education faculty members are encouraged to conduct research, findings
from research are codified into textbooks, and courses for a wide range of education
practitioners are organized and offered to students—indeed, required of students. All
of this occurs under the assumption that there is a justified knowledge base that can
be articulated and transmitted to students and, further, that this knowledge base can
contribute to their future practice.

So we have built a huge enterprise, called education, that is based on a set of
assumptions that many people, including teachers, doubt. Some 1,200 institutions of
higher education participate in this enterprise. They have departments, schools, or
colleges of education, all offering programs of study that include program participa-
tion standards, completion requirements, and so forth. All 50 states participate in this system of education, outlining courses and curricula that they require for certification. Textbook publishers participate in this system by publishing the texts that are used in all these courses. Funding agencies, both public and private, participate in this system, sponsoring research that they expect to be added to the knowledge base and to be ultimately of value to practitioners.

And yet, despite the size, complexity, and expense of this undertaking, despite the widespread commitments of foundations, state agencies, textbook publishers, and colleges and universities, and despite the apparently entrenched, institutionalized, and embedded nature of education programs, there have always been skeptics raising questions about the need, value, or merit of these programs. Apparently, the University of Chicago was skeptical. And apparently, the justifications put forth by education professors have not been adequate, for the skeptics never go away.

One opinion about the University of Chicago’s decision is particularly telling, for it was written by a teacher who was, at the time, attending a graduate school of education (Bassett, 1997). This teacher said he would not miss the University of Chicago Education School—that it didn’t really offer much to teachers like himself. He further claimed that education schools which are cut off from practice become arcane and irrelevant, that a good teacher education program acknowledges the importance of clinical faculty, and that a good education school recognizes that teaching is a craft, not a science. “They respect and rely on the knowledge, judgement, and experience of practicing master teachers” (p. 35).

This is an interesting argument. If it is the case that teaching is a craft, rather than a science, and if it is the case that it is best learned from clinical faculty rather than from academic faculty, then one can reasonably ask why the subject of education should be included in a higher education curriculum at all, or be the subject of research at all. One can ask why teachers must obtain a credential before entering teaching, rather than learning their craft in the doing, as craft knowledge is typically learned. When we think of craft knowledge, we think of knowledge that is kinaesthetic—knowledge of touch and feel, weight and balance, timing and nuance. We think of it as knowledge that develops from repeated experiences working with a particular kind of material, gaining a sense for its responsiveness to different kinds of actions. Crafts are not learned by reading books. They are learned from experience and with guidance from a master.

Bassett’s (1997) column gives us one way of understanding the nature of the continuing debate about the merits of teacher-education programs. His argument that teaching is a craft, and therefore does not rely on research, is fundamental to debates about whether education programs can make a genuine contribution to teaching, or to any other education pursuits such as counseling, administering, curriculum developing, or policymaking. Are all of these activities crafts? Do they not benefit from the kind of formal knowledge generated from research and transmitted in textbooks?

If Bassett (1997) is right, then it is indeed fair to ask what value is added by this huge enterprise. Why should we continue to study teaching, learning, and child
development, for instance, and why codify our knowledge in textbooks for prospective educators, if knowledge from research is unrelated to the craft knowledge educators actually need and use in their practice?

To address this question, I focus on the practice of teaching and examine the nature of knowledge generated by research and codified in textbooks on teaching with the nature of knowledge that Bassett (1997) claims is used in teaching. Let us call the knowledge that is produce by researchers “expert” knowledge, always retaining the quotes to indicate that this is the ostensible knowledge of experts. Let us also refer to the kind of knowledge that derives primarily from clinical experiences, as craft knowledge, following Bassett. In the pages that follow, I examine each of these kinds of knowledge. I then introduce a third kind of knowledge, which I call expertise, and which I put forth as a blend of “expert” knowledge and craft knowledge.

THE NATURE OF “EXPERT” KNOWLEDGE

“Expert” knowledge is the product of research. As such, it has a number of important features. Probably the most salient of these features is that “expert” knowledge is propositional. That is, we can say in sentences all the things that have been learned from research. We can put this knowledge into encyclopedias, textbooks, how-to manuals, guidebooks, and handbooks. We can list it in bullet form, or we can elaborate on it if we wish. Propositional knowledge is very different from, say, kinesthetic knowledge, which feels as if it is held in the muscles rather than in the brain. Teachers know how to move about in their classrooms, for instance, and how to posture themselves to maintain a certain persona, yet they cannot lay out this knowledge in sentences. It is only with great difficulty that experienced teachers can tell novices how to quiet a classroom simply by their posture. Knowledge about the movements of teaching—kinesthetic knowledge—is an important kind of knowledge that is used every day, but is not definable in sentences; it is not propositional.

That “expert” knowledge is propositional also means that it is public, rather than private. Because we can say it and write it down, we can share it and discuss it with others. We can refer to encyclopedias to settle disputes among ourselves. This public nature of “expert” knowledge makes it different from, say, experiential knowledge, the large stores of knowledge each of us has accumulated from our own experiences. Experiential knowledge is private: it is retained from our own private point of view, each of us having a unique collection of experiences. And, of course, we draw on our experiential knowledge virtually all the time to help us make sense of new experiences. Each time we meet someone new, for instance, and want to assess that person’s trustworthiness, we form our judgment by contrasting this person with analogous people we have known in the past. Teachers can sense when a class is getting restless, and what the consequences of that might be, because they
have seen these signs many times before. Yet each teacher might be receptive to different cues, based on the particulars of his or her own experiences.

So “expert” knowledge is different from experiential knowledge because it is public, and different from kinesthetic knowledge because it is propositional. This public, propositional nature of “expert” knowledge also means that it is testable and contestable. If I were to claim that, say, fourth-grade children frequently hold misconceptions of photosynthesis, thinking that plants obtain food from the soil rather than making it themselves, you may challenge me on this proposition. You might ask what evidence I have, or where and how I determined this. You may test the proposition yourself, by quizzing a group of fourth graders, and comparing your results to mine. If you tell me that children across the nation are performing more poorly in science than children in other countries, I may choose to contest that point. Even if we don’t have the resources needed to directly assess children nationwide, we can seek other written material, such as journal articles or research reports, to learn what others say about this proposition and to learn what evidence they have used to draw their conclusions. So “expert” knowledge is testable and contestable, in part because of its propositional and public nature.

Finally, “expert” knowledge is developed through procedures, such as research, that are themselves public. Research is an activity that is governed by canons of evidence, procedures, and warrants. Like elementary arithmetic students, researchers must show their work. They must show their readers how they derived their findings. And they must be prepared for readers to argue about the appropriateness of these methods, to contest the conclusions that derive from these procedures, and to devise their own procedures to test the conclusions for themselves. Their results, in turn, are public, so that the entire community may enter into this debate if they desire.

Everything about “expert” knowledge, then, is public. Not only are the findings public by virtue of being propositional, but, in addition, the procedures are public, the canons regarding the procedures are public, and the canons regarding the reporting of procedures are public. That all these aspects of “expert” knowledge are public means that all of them are also open to dispute. Just as we can challenge the procedures used by any one individual, so can we challenge the canon itself, so that over time, not only does “expert” knowledge change, but so do community standards for how “expert” knowledge is justified.

All of these features of “expert” knowledge—the fact that it is propositional, public, testable and contestable, and is based on procedures that are public and contestable—are important. Because “expert” knowledge has these characteristics, it is also group knowledge. It is shared knowledge. It is distinctly different from the vast stores of kinesthetic and experiential knowledge that each of us privately holds, and that each of us uses everyday.

There is one final aspect of “expert” knowledge that is also important: The problems people try to solve when they produce “expert” knowledge are also public. They are shared, group problems, and efforts to solve these problems are group efforts rather than individual efforts. Even though particular researchers may work
in isolation, they compare their progress with that of others and are interested in learning about the progress of others. If one researcher solves the problem entirely, there is no need for others to solve it again; just as the problem was a public, shared, group problem, so the solution is a public, shared, group solution. If one researcher makes progress on understanding adolescent alienation, all researchers can profit from this finding. Everyone can learn and possess this new knowledge.

This shared quality of “expert” knowledge makes it quite different from kines-thetic and experiential knowledge, which are necessarily private. When an individual teacher sees a problem of adolescent alienation, the problem she is trying to solve is a private problem, not a shared problem. She identifies it through her own private experiences with this particular adolescent, and she strives to solve it by further analyzing these experiences. To the extent that other teachers also are troubled about alienated adolescents of their own, we may say that their problems are common problems, but they are still separate, private problems, for each teacher faces a particular manifestation of the problem and interprets it in a unique way, based on his or her own configuration of experiential knowledge. Common problems, then, are families of analogous private problems that many people face, but that must be solved privately by each individual, whereas shared problems belong to groups and can be solved together. With this distinction, we can now characterize “expert” knowledge not only as propositional and public, not only as deriving from public canons of evidence and warrants, and as testable and contestable, but also as organized around problems and solutions that are shared rather than common.

“Expert” knowledge is an essential ingredient in all of higher education, for the entire organization of higher education is based on the assumption that there is a substantial body of public, propositional knowledge whose validity has been tested and which can be summarized in textbooks and lectures for students. Few doubt that such knowledge exists, nor that it is important, nor that it contributes to the quality of our lives in a wide range of ways. At the same time, few would argue that expert knowledge is the only kind of knowledge that is useful in our daily pursuits. Both kinesthetic and experiential knowledge are important and legitimate forms of knowledge. Like “expert” knowledge, these other forms of knowledge are learned, they are retained in memory, and they are recalled and applied in new situations.

But many doubt that “expert” knowledge has a substantial contribution to make to the field of teaching. Many critics of teacher education either believe that teachers are born, rather than made, or that teaching is a self-evident line of work, the sort of thing that can only be learned in the doing. Because teachers’ knowledge is invisible—as virtually all knowledge-in-use is—and because teaching seems in so many ways to be analogous to parenting, it is easy to conclude that the most important knowledge about teaching is experiential and kinesthetic, not propositional. Indeed, most parents, policymakers, and other observers of education consider themselves to be experts in education because of their own experiential knowledge of schooling (Cooper, 1996; Kaestle, 1992). Consequently, we can probably expect skeptics to continue to be part of discussion and debate in the field of education.
What makes the contemporary version of this debate unusual, though, is that the salience of “expert” knowledge to teaching is also being challenged by education faculty themselves, not just by people outside the field (see, for instance, Carter, 1993; Doyle, 1997). That is, people who actively and willingly participate in this enormous, complex, and expensive enterprise, whose professional work consists of producing “expert” knowledge and/or of transmitting that knowledge to college students, whose incomes depend on these activities, and who are knowledgeable about teaching and have an intense personal interest in it, are questioning the value of propositional “expert” knowledge from educational research and are praising the wisdom of teachers’ craft knowledge. Though the education professorate as a whole is accustomed to living with skeptics from outside the field, and of having to defend itself and its work against them, it is unaccustomed to having to defend its work against its own membership. Because this membership is far more informed than many external skeptics, it is important to understand these new arguments and to consider their merits.

**THE NATURE OF CRAFT KNOWLEDGE**

Two lines of thinking have contributed to this new and vital interest in teachers’ craft knowledge. One of these lines is interested in finding ways to make “expert” knowledge more accessible to teachers—in bridging the chasm between public propositional knowledge and private experiential knowledge. The other is more interested in establishing the validity of teachers’ craft knowledge, sans “expert” knowledge. Both of these lines of thought picked up steam in the early 1980s, motivating the current interest in the nature of teachers’ craft knowledge.

The first line of thought developed as researchers began to extend their methodology to include case studies and interviews. As they did, they found a need to articulate the form of “expert” knowledge they thought they were generating. Stake (1978), for instance, noted that case study findings were in an epistemological form that was more in harmony with readers’ experiences. Then, in 1983, Bolster elaborated on the compatibility argument. He noticed that teachers tended to have little regard for “expert” knowledge, and suggested that a particular set of disparities between “expert” knowledge and teacher’s craft knowledge contributed to this apparent impasse. One disparity Bolster noticed was in the way each kind of knowledge was formulated or discovered. Teachers do not learn through formal, public experiments that can be critiqued by their peers, as researchers do, but instead through a continuous, private process of predictions and outcome—in other words, through experience. As they work in their classrooms, teachers constantly adjust their predictions based on what has happened on previous occasions.

Bolster (1983) outlined other differences as well. For instance, teachers’ experiential knowledge is context dependent, dynamic, and particularistic. All of these features derive from the fact that teachers’ knowledge is built from their own
Experiential knowledge is inherently private and idiosyncratic, since it is derived from the unique configuration of each individual’s experiences. And since teachers’ experiential knowledge is built from specific experiences in particular schools and communities, it often requires substantial change when teachers relocate.

These features of teacher knowledge contrast with the kind of knowledge Bolster (1983) thought researchers aimed to produce, for example, propositions about universal regularities (“Children move from pre-operational to operational thinking at about age eight”). To make research more valuable, understandable, and useable to teachers, Bolster argued that researchers should generate a kind of “expert” knowledge that better matched the form of knowledge held by teachers. Instead of conducting formal experiments and searching for universal truths, for instance, Bolster argued that educational researchers should conduct ethnographic studies which would illuminate the multiple causes and interactive influences that characterize classroom life. Such studies would yield a form of knowledge closer to the kind of knowledge teachers seem to hold—particular, context-sensitive, narrative, and multifaceted—and would be, by virtue of its compatibility, more understandable to, and useable by, teachers.

Bolster’s (1983) argument reflected a major methodological shift that was already well under way in educational research, and has continued since. Today, it is safe to say, formal experiments constitute only a small fraction, and case studies constitute a very large fraction, of the corpus of contemporary educational research. Bolster’s argument also anticipated a continuing debate about the relative contributions of different forms of knowledge to teaching, and a continuing interest in the tenuous relationship between “expert” knowledge and teaching practice. Michael Huberman (1985; 1993), for instance, has carried Bolster’s argument a few steps further by suggesting not only that (a) teachers’ knowledge is particularistic, but also that (b) teachers develop their instructional repertoires through an inherently idiosyncratic process, (c) there is little they can learn from others, and (d) their “truth tests” for new ideas do not rest on empirical evidence, but rather on “craft validation”: that is, an idea is worth trying if another teacher vouches for it or if it fits intuitively into the teacher’s own past experience. Huberman’s argument is that teachers have common problems, not shared problems. Consequently, each teacher must devise her own solution to her own version of the problem, and “expert” knowledge offers very little help.

Central to this general line of reasoning is that, even though “expert” knowledge and experiential knowledge differ, there is still a role for “expert” knowledge. These analysts are not suggesting that “expert” knowledge has no value for practitioners, but rather that it could have more value, if only it were altered in important ways. They claim, for instance, that past research has been overly positivist when it should be interpretive (Barone, 1990), or that it has yielded propositional knowledge when it should yield narrative knowledge (Olson, 1995), or that it has been done objectively when it should have been done subjectively (Wolfe, 1989), or that it has been...
done independently of teachers when it should have been done collaboratively (Huberman, 1990). What holds these various arguments together is the observation that the knowledge teachers draw on—much of which is necessarily experiential—is fundamentally different from the formal, propositional “expert” knowledge that is developed by educational researchers, and that if we want teachers to rely more on “expert” knowledge, we must find ways to help them incorporate it into their experiential knowledge.

The second line of thought, initiated at around the same time, was stimulated in part by Donald Schon’s (1983, 1987) studies of professional practice and professional learning. Schon distinguished the reasoning and methods used to generate “expert” knowledge from those used by practitioners, calling the former technical rationality and the latter reflection-in-action. He has since been criticized for forcing a dichotomy between these two modes of knowing (Fenstermacher, 1988; Shulman, 1988), but the distinction has remained, nonetheless, stimulating a new generation of research that aims to understand the nature and nuances of teacher knowledge and teacher thinking, quite apart from whether research knowledge does, or could, contribute to teaching.

This second line of work differs from the first not only in its lack of interest in the real or potential role of “expert” knowledge, but also in its political overtones. Much of it aims not only to document the character of teachers’ experiential, or craft, knowledge, but also to celebrate how unique and valuable teachers’ knowledge is. An example of such work is that of Clandinin and Connelly, who have devoted themselves to defining what they call teachers’ “personal practical knowledge” (Clandinin, 1986; Clandinin & Connelly, 1991; Connelly & Clandinin, 1985; Connelly, Clandenin, & He, 1997). These authors focus on the flow of events in classrooms and in how teachers’ knowledge is embodied in this flow. They characterize teachers’ knowledge as experiential, and as consisting of such things as images, rhythms, metaphors, and routines—all of which form a narrative unity that extends over time, so that today’s experiences in the classroom are tied to last year’s experiences, and together these experiences form a coherent whole. These authors eschew the kind of categories and analytic accounts of teaching that generally accrue from public, propositional “expert” knowledge, claiming that such accounts necessarily do an injustice to the real thing (Connelly & Clandinin, 1985).

Other authors have examined the kinds of reasoning teachers use (Brown & McIntyre, 1993) the kinds of metaphors they use (Russell & Munby, 1991; Russell, Munby, Spafford, & Johnston, 1988), the kinds of routines they devise (Doyle, 1986; 1990), the case-based or narrative form of their knowledge (Thomas, 1994), and the situated nature of that knowledge (Yinger & Hendricks-Lee, 1993). In nearly all these cases, the authors are struggling to identify the special character of teachers’ craft knowledge and the features that distinguish it from “expert” knowledge.

Rather than seeking rapprochements between different forms of knowledge, this second line of work tends to distinguish them, emphasizing the inherent incompatibilities between craft knowledge on one side, and “expert” knowledge on the other.
Because these arguments frequently challenge the authority of traditional “expert” knowledge, Thomas (1994) has referred to them as treasonable texts. Hargreaves (1996) characterizes this second line of research on teacher knowledge as a whole by saying that it has

focused on its personal and practical nature, has celebrated rather than dismissed its idiosyncrasies, has sometimes embraced its emotional and intuitive qualities as well as more usual rational and reflective ones, has valued rather than demeaned the narrative forms of storytelling and case examples through which teachers discuss their practice, and has generally sought to represent the wisdom of teachers’ practical knowledge and experience in a full and favorable light. (1996, p. 107)

The central argument of these numerous studies is that the kind of knowledge that enables teachers to function in the classroom is fundamentally different from the kind of knowledge researchers are generating, and the differences are so great as to suggest that perhaps educational research does not, in fact, have a viable role to play in the improvement of teaching.

Often, this literature seems to reflect a craving for freedom from any kind of constraints. Diorio (1982), for instance, suggests that the possession of “expert” knowledge restricts one’s professional autonomy, presumably because it forces one to comply with the “expert” prescriptions. Similarly, Webb (1996; Webb & Blond, 1995) argues that policies that impose standards on teaching, such as teacher evaluation systems, student assessments, or curriculum frameworks, inherently deny teacher knowledge, presumably because teachers know what to teach and know whether they are doing a good job. These authors seem to believe that any references to “expert” knowledge automatically challenges the validity of the teachers’ craft knowledge. Casey (1995) finds these arguments to be essentially narcissistic, and speculates that they express an emotional response to the alienation of a postmodern world.

What is missing from much of this second line of work is the idea that, even if craft knowledge is important, it might also benefit from “expert” knowledge, and it is the potential for complementarity that I now want to address. The central argument I want to make is that the existence of situated, strategic, narrative knowledge—that is, craft knowledge—does not mitigate the need for public, justified, propositional “expert” knowledge. To do so, I now introduce yet a third kind of knowledge, 

THE NATURE OF EXPERTISE

Let us return for a moment to the teacher’s editorial that stimulated this paper. Bassett (1997) argues that “expert” knowledge has little to offer teachers because “expert” knowledge derives from science, whereas teaching is a craft rather than a
science. The implication of such a statement is that there are only two ways of conceptualizing teaching. If teaching is a science, then every move teachers make must be based on “expert” knowledge. If, on the other hand, it is a craft, then every move is based on experience, and “expert” knowledge has nothing to offer.

But there are other ways of conceptualizing professional knowledge, and one in particular that I want to examine is the notion of professional expertise. Cognitive researchers have been examining professional expertise for several years now, and are beginning to have a good sense for what it is and how it functions. Expertise appears to develop from an optimal combination of “expert” knowledge and craft knowledge.

The character, content, and source of expertise has been studied in many different fields, beginning with expertise in closed systems, such as chess, and then moving into more open, but disciplinary systems, such as medicine and physics. A number of important findings are beginning to emerge from this work. These findings are important to the ongoing arguments in education, for they give us a broader perspective from which to view our own provincial turf. And it is in these studies of expertise that we learn whether or how “expert” knowledge fits with craft knowledge.

One thing that is clear about expertise is that there is a great deal of craft in it. People with expertise are able to monitor their own behavior. They can judge their actions with their senses—gauge the look and feel of their work and sense the timing for it. They can recognize signs of success and signs that might be worrisome because they have seen these signs before and have seen what happens next before. This is craft knowledge, built from extensive experience. It is dynamic, situated, private, and frequently kinesthetic—and much of it tacit as well. Experts may be very adept at accurately judging their own actions and at accurately recognizing signs of success or of potential problems and yet still have difficulty articulating this knowledge to an apprentice.

But another important feature of expertise is that it is voluminous. Experts are people who can bring a richly detailed body of both propositional knowledge and experiences to bear on any given situation. This knowledge, in turn, gives them a way of interpreting and understanding new situations—called pattern recognition—which enables them to recognize a situation as similar to other situations and to know, through this recognition, what their options are for response (Bereiter & Scardamalia, 1993). Chess players, for instance, recognize configurations of pieces on the board because the configurations have meaning for them and because they have seen most of them before. Once meaningful patterns are recognized, options for action are also recognized. Physicians recognize patterns of symptoms, wine experts recognize nuances of flavor, and teachers recognize and interpret patterns of student errors. The importance of pattern recognition cannot be over-emphasized, in part because it has been found so frequently in studies of expertise, in part because pattern recognition is often tacit, and in part because something like pattern recognition is frequently observed in studies of teacher knowledge.
But pattern recognition is not made possible simply by having had experiences. Experts are able to retain large stores of knowledge because of the way in which their knowledge is organized. Experts are able to retain more details from their own experiences, and to see more details in a new situation, because they can store the information in larger, more meaningful chunks than nonexperts can. The ability to organize information into large, meaningful chunks allows them to retain more of it and to automate many chunks of behavior, thus freeing up mental energy to attend to other things. “Expert” knowledge frequently provides the concepts and principles that enable experts to organize and retain their experiential knowledge. Without “expert” knowledge, it would be possible for people with very similar experiences to organize, chunk, and retain their experiential knowledge in very different ways, so that what they have learned from their experience seems remarkably different. With “expert” knowledge, even people whose experiences are different have the potential to organize their experiences according to shared concepts and principles.

The most important feature of expertise, then, is that it is grounded in principled knowledge—that is, in “expert” knowledge (Bereiter & Scardamalia, 1993). Physicians, for instance, have a body of knowledge that is tightly organized around the principles of pathology (Christensen & Elstein, 1991). The propositions they have learned enable them to classify their experiences and to store their experiential knowledge in a way that reflects “expert” knowledge. Practitioners with expertise may draw on experiential knowledge to recognize patterns in situations, but they can also, when called upon to do so, justify their thinking and their actions with reference to the “expert” knowledge in their field. This is the aspect of expertise which is often overlooked when researchers examine the craft of teaching.

Consider again, for instance, the problem of alienated adolescents. Numerous teachers may encounter this type of problem in their secondary classrooms, and may struggle to find ways to engage these students in academic material. English teachers may seek literature that addresses adolescent issues, and biology teachers may try to organize their content to address adolescent concerns. The solutions they devise will surely depend on their particular contexts and the particular observations of the students they face. But the patterns they see in their own experiences, the symptoms they recognize, and their interpretations of these patterns and symptoms, depend on concepts and principles that derive from “expert” knowledge—knowledge of the symptoms of alienation, of how and why it develops in adolescents, and so forth. Different teachers may try different approaches to engaging their students, but the teacher with expertise will be able to justify her solution by appeal to the body of public, tested knowledge; whereas the teacher with craft knowledge can only justify her approach by saying that her private experience motivated her to try this approach. We cannot challenge her rationale, for we have no access to her store of craft knowledge.

This difference is subtle but important. Moreover, to the outside observer, expertise is easy to miss, for as expertise develops, propositional knowledge is reorganized, transformed into experiential knowledge, and frequently becomes tacit.
It becomes what Brown, Collins, and Duguid (1989) call situated knowledge. Teachers may learn about adolescent alienation in textbooks, for instance, but their understanding of this concept will change as they encounter different specific examples of it. Similarly, they may study the kind of misconceptions in science that fourth graders are likely to develop, and then elaborate this knowledge of student misconceptions as they see numerous examples of them in their practice. Their propositional knowledge about student misconceptions has become situated—embellished through experience—so that they now have a much more detailed and elaborated understanding of the general phenomenon. That their knowledge is situated, however, does not mean that the original concept of student misconceptions no longer exists in a propositional form. On the contrary, the “expert” knowledge has facilitated the teacher’s ability to organize her experience of children’s learning so that she sees more than she otherwise would have noticed, and can retain more than she otherwise would.

All professional expertise, then, begins with propositional knowledge, which eventually becomes converted into a dynamic, situated, and experiential form. In fact, this is true not only of professional expertise, but of any proposition which is acted upon. For to act upon a proposition is to understand it’s meaning in the context of a specific situation. The proposition that “fourth-grade children hold misconceptions about scientific phenomena” does not automatically enable teachers to recognize those misconceptions, nor to design activities that will correct them. These events can only occur once the teacher has translated the proposition into its situated meaning.

One thing that happens when propositions are translated into experience is that they become the property of the individual, rather than of the group. It is through this process that public knowledge becomes relevant to private problems. I have argued elsewhere that even such compelling research evidence as that regarding the health hazards of smoking has rarely directly influenced anyone’s practice. When someone decides to stop smoking, they do so not because the research says smoking is unhealthy, but instead because they have translated that proposition into a set of experiences. They have become aware of events that they may not have noticed before—shortness of breath or a nagging cough—and it is this pattern of experience that they respond to (Kennedy, 1989). When propositional knowledge is translated into experiences, we are able to see patterns that we may not have noticed before, or to interpret familiar patterns in new ways.

Expertise, then, represents what happens to “expert” knowledge when it is transformed into experiential knowledge. Expertise enables us to recognize and define our private experiences, and to notice and interpret its patterns. One teacher may know what a “cooperative group” is, for instance, because she has read an article about cooperative groups, and another may know because she has seen many instances of cooperative groups. It is easy to conclude that the former teacher has “expert” knowledge, while the latter teacher has craft knowledge, but such a conclusion would be mistaken. The latter teacher’s understanding is highly situated
because she has many specific cases on which to base her knowledge. But the concept itself derives from “expert” knowledge and can be defined verbally if need be. Because this situated knowledge is grounded in “expert” knowledge, it is more than craft knowledge—it is expertise.

“EXPERT” KNOWLEDGE, CRAFT KNOWLEDGE, AND THE FUTURE OF EDUCATION

One of the primary arguments against the need for education programs in colleges and universities is that teaching is a craft rather than a science, and that the kind of formal, propositional knowledge that is developed and taught in education programs does not, and cannot, contribute to the dynamic, situated, and idiosyncratic practices of teaching. This argument gains salience in part because observers of teaching, and even teachers themselves, may not be able to see the “expert” knowledge once it becomes incorporated into teaching routines.

Still, there are real and legitimate differences between “expert” and craft knowledge, and the differences are striking enough to wonder whether the two can ever marry. “Expert” knowledge derives from formal investigations, in which one’s methods are explicit and one’s reasoning is subjected to peer review. It is knowledge that is agreed upon by the community at large, based on argument and on inferences from evidence. The results of “expert” knowledge can be described in sentences—propositions—that describe how we think one thing relates to another. Because “expert” knowledge can be stated in sentences, it can also be pulled together into textbooks and encyclopedias, enumerated and summarized in a number of ways. It is this quality of “expert” knowledge that causes it to sometimes be labeled as static in order to distinguish it from craft knowledge and expertise, both of which are situated and dynamic.

Craft knowledge differs from “expert” knowledge in almost every dimension. It is private rather than public, dynamic rather than static, tied to actions and developed through active experiences rather than through public procedures, is frequently tacit, and is difficult to describe in sentences. A great deal of our knowledge is craft knowledge—not just our professional knowledge, but the knowledge we use every day in our interactions with our families, in our management of our personal business, and in our daily routines and habits. All of these activities depend heavily on experiential knowledge, and we probably could not do much of anything without this knowledge. Without experiential knowledge, we could not drive to the store, get dressed, prepare a meal, or do any of the other activities that we routinely do.

The question of interest here, though, is whether craft knowledge is inherently incompatible with the kind of knowledge embodied in “expert” propositions. After examining these two kinds of knowledge separately, I introduced the notion of expertise as a blend of “expert” propositions and craft knowledge. Expertise differs from both “expert” knowledge and craft knowledge in important ways. It differs
Kennedy from “expert” knowledge in that it is dynamic, tied to actions, and developed through active experiences. But it differs from craft knowledge in that it can be justified with propositions and its merits can be evaluated by publicly-shared standards of practice. While there is plenty of room in expertise for personal style and personal judgment, it is not as private, tacit, or idiosyncratic as craft knowledge seems to be.

I doubt that anyone would argue that professional knowledge can or should consist solely of “expert” propositions. Teaching clearly is not a science, and we can never expect the practice of teaching to be entirely governed by “expert” knowledge. In fact, no organized activity or practice can occur without craft knowledge. The question that demands an answer, therefore, is not whether craft knowledge has a role in teaching, but whether “expert” knowledge has a role in teaching. And the answer to that question depends on whether teaching is built entirely on craft, or instead, is built on expertise.

A lot is at stake in answering this question. The entire enterprise of education is built on the assumption that teaching, and other forms of educational practice, should not be based solely on craft knowledge, but that they demand expertise. Education schools are formed under the assumption that “expert” knowledge has an important role in teaching. Education faculty engage in research on teaching and learning under this assumption, textbook publishers compile research findings under this assumption, and states require education programs for certification under this assumption. Millions of dollars are expended by governments, textbook publishers, and students to assure that these propositions find their way from dusty research journals to the hearts and minds of aspiring young teachers. All under the assumption that this knowledge can be translated into action and can provide the basis for teaching expertise.

But having established that expertise exists in other fields does not mean that it exists, or should exist, in teaching. Moreover, even if we found, through examination, that expertise existed in some teaching, we would not know that it existed in all teaching. The ideas I have outlined here simply clarify the terms of the debate, they do not resolve it. In fact, two hypotheses are still possible from this examination of expertise. One is that those who have extolled the virtues and intricacies of teachers’ craft knowledge are missing the importance of “expert” knowledge in teaching. Like adoring relatives of a newborn who only see traits from their side of the family in the infant, these researchers have, in their zeal to recognize the importance of situated knowledge and accumulated experiences, neglected the equally important role of “expert” knowledge. They have noticed the craft—one side of the family lineage but not the “expert” knowledge, which blends with craft to form expertise. If this is our hypothesis, then we can still envision a role for colleges of education, for research in education, for textbooks in education, and for the degree and certification requirements that currently outline teacher preparation programs.

But the other hypothesis is that teachers do not, in fact, either have or want the kind of expertise that is recognized and valued in other professions. Teachers may prefer to sustain their field as one in which privately-accumulated idiosyncratic expe-
rience—craft knowledge—is all they need. There is some merit to this idea. Many teachers, as well as many parents, view teaching as an extension of parenting: It is something learned in the doing, not something one formally prepares for, and it is driven largely by one’s own value system. We expect parents to be idiosyncratic in their styles, values, and tactics. Perhaps this is what we should expect from teachers as well. But if teaching depends solely on craft knowledge, rather than on expertise, then there is indeed no role for educational research, no need for courses in education, and no need for education departments altogether.

REFERENCES


