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The Pale of Consideration When Seeking Sources of Teaching Expertise

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There is a body of current literature that identifies the source of teaching expertise primarily in teacher-based knowledge and experience rather than in university research-based knowledge and empirical theory. This article illustrates major arguments for narrowing the source of teaching expertise to considerations built on teacher-based knowledge and experience and examines the sociopolitical concerns that attend the arguments. A case for maximal widening of the pale of consideration is introduced and is used to offer an alternative way to think about the sources of teaching expertise that addresses the legitimate sociopolitical concerns but that also is epistemologically sound.

Teaching expertise has a variety of possible sources. In recent literature, there is a sustained critique by those who, when seeking sources of teaching expertise, aim to narrow the pale of consideration to teacher-based knowledge and experience, variously described as practitioner inquiry and research done by teachers, practitioner knowledge, practice, and practical knowledge. Although these concepts are not coextensive, there is considerable overlap both in the meaning of the concepts and in the motivations of those who employ them in their critiques. The critiques are directed toward a view (seen as unduly advantaged for decades) that narrowed consideration in another direction: to knowledge based on university research and empirical theory, variously called theoretical knowledge, theory, formal knowledge, basic research, and expert knowledge. As with the former list of concepts, those in the latter set are not coextensive. The crux of the distinction that is of interest to me is that the first list is seen to represent from the inside the specific and concrete situations in which teachers work whilst the second represents the general and abstract perspectives of outsiders.

The literature is cast in both sociopolitical and epistemological terms,

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with talk of insiders and outsiders and the need for new epistemologies and ways of knowing and calls for bridging the gap and searching for integration. The sociopolitical context covers such issues as the professional status of teachers, the relationship of the value of knowledge for guiding teaching to the source of that knowledge, and the dependence of teachers upon knowledge producers who are outside of teaching. The epistemological context covers such issues as the nature of experiential and theoretical knowledge, the relationship of the general and abstract to the specific and concrete, and the criteria for warranting claims to knowledge. The categories of issues are not independent, because a claim made in one context might be used to defend or to criticize a claim made in the other. For instance, it is claimed frequently that university research-based knowledge and empirical theory cannot work in practice—an epistemological point. On the basis of this claim, teachers might be encouraged not to place themselves in a position of dependence by altering their beliefs that have been confirmed by experience so that they accord with theory or research-based beliefs—a sociopolitical point. To allow their experience to be overridden would be tantamount, it is claimed, to the deprofessionalization of teachers—a further sociopolitical point. This article fits with those that resist calls for new epistemologies to address these sociopolitical concerns (e.g., Fenstermacher 1994; Siegel 1996), because the “old” epistemology can serve all the desires voiced in the critiques, and it fits with those that commend efforts to bridge the gap between the two sides of the argument. The contribution I hope to make is to advance these efforts by articulating a specific means by which the bridging can be achieved.

My strategy will be to show that, even though many of the sociopolitical concerns are justified, they often are used to recommend epistemologically unsound practice. The thrust will be to argue that the sociopolitical concerns can be met within an epistemologically sound notion of teaching expertise and to demonstrate how this can be done. I shall argue in the account to be presented that both teacher-based and university research-based knowledge are needed to provide a source of teaching expertise. I argue further that there should be no exclusion of and no special status for either category of knowledge, although each has a role that the other cannot fill. The sociopolitical reasons often proffered for abandoning university research-based knowledge in favor of

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teacher-based knowledge draw upon a flawed epistemology that incorrectly construes research-based knowledge and empirical theory and their application. A corollary of my view is that the pale of consideration for grounding teaching expertise must include both of these sources of knowledge and the interplay between them. In saying this, I recognize that there are yet other sources of teaching expertise, including normative educational theory. I do not articulate a thesis about normative theory in this article except to say it is central to teaching and to education.

This analysis is directed toward two audiences. It is directed toward the many educational theorists who elevate teachers' knowledge, practice, and experience above university research and empirical theory as sources of teaching expertise. It is directed also toward teachers and educational policy makers who seek advice on using university research-based knowledge and empirical theory. The article will be developed in three major sections. First, I shall illustrate the major recent arguments for narrowing the consideration of sources of teaching expertise to those built on teacher-based knowledge and examine the sociopolitical concerns that attend the arguments. Second, an argument for maximal widening of the pale of consideration is introduced, and it is used in the third section to offer an alternative way to think about sources of teaching expertise that addresses the legitimate sociopolitical concerns but that also is epistemologically sound.

Narrowing the Pale of Consideration to Teacher-Based Knowledge and Experience

The case that expertise is grounded in teacher-based knowledge and experience cuts two ways: On the one hand, it attempts to undercut university research-based knowledge and empirical theory as sources of teaching expertise, on the grounds that they are irrelevant to teaching, alienate teachers, and belong to a flawed paradigm for teaching. On the other hand, it attempts to elevate teacher-based knowledge and experience as particularly suitable sources of teaching expertise because teaching is a practical activity, teachers have privileged access to classrooms, and experience focuses on the particular.

Undercutting University Research-Based Knowledge and Empirical Theory

The irrelevance of research-based knowledge and empirical theory to teaching is claimed on a number of grounds, as has been documented

previously (e.g., Huberman 1996). One of the most common is that such knowledge is both abstract and general, in contrast to teaching, which is concrete and specific. On the assumption that this contrast is accurate, claims such as the following might be advanced: “the generalisation[s] of a Piaget or Bruner are of little help in sorting out the particular practical problems [teachers] are immediately faced with” (Carr 1992, p. 246), or, teachers are “not always motivated by a need to generalize beyond the immediate case” (Lytle and Cochran-Smith 1990, p. 85), and, “formal research findings are too generalized for classroom teachers to use” (Pekarek et al. 1996, p. 111). For reasons such as these, university research-based knowledge is unlikely to survive a teacher’s “personal test for effectiveness” (Sanders and McCutcheon 1986, p. 66). A second problem identified with the relevance of university research-based knowledge is that it has no direct link to practice. As David Carr says of the way many people think about education (1992, p. 251), “discourse of a theoretical nature . . . can have no real relevance to educational practice if it lacks a direct practical application.” Finally, the irrelevance of research-based knowledge to teaching sometimes is advanced on the grounds of the research’s insufficiency as a basis for teaching. Hugh Munby and Tom Russell (1994) quote a teacher who was criticizing the introduction to education provided during undergraduate studies by comparing it with experience: “all the build-up [i.e., the university education] to that [the teacher’s experience as a teacher] didn’t really mean anything to me before I got out there and experienced it” (p. 88). Carr claims, “there may well be far more to the sort of knowledge required for the successful practice of teaching than it is possible to formulate in terms of either theoretical or technical knowledge” (1995*b*, p. 139), by which he means to include university research-based knowledge and empirical theory.

The claim that university research-based knowledge alienates teachers has been made often (e.g., Schön 1992). The point is that the acceptance of university research-based knowledge as a guide to practice results in teachers making themselves subservient to the producers of that knowledge. In this way, teachers become alienated from their jobs, because it is no longer they, but university researchers, who are in control: “when practitioners accept and try to use the academy’s esoteric knowledge, they are apt to discover that its appropriation alienates them from their own understandings, engendering a loss of their sense of competence and control” (Schön 1992, p. 120). It has become a truism that “educators distrust research done by distant people at distant locations” (Floden 1996, p. 193) and that teachers “are more than simply passive consumers of knowledge” (Fenstermacher 1994, p. 18). A sometimes recommended response to the perceived distrust and threat of alien-

ation is either to encourage teachers to “proceed via [their] own critical and considered reflection” (Carr 1992, p. 247); “to confront controversial issues of voice, power, ownership, status, and role in the broad educational community” (Cochran-Smith and Lytle 1990; p. 10); to become “directly involved” in the production of theory about teaching (Lieberman 1992, p. 6); or to struggle for “more epistemological power” (Anderson and Herr 1999, p. 17).

The viewpoint that university research-based knowledge and empirical theory belong to a flawed paradigm for teaching is drawn from the premise that such knowledge is related to science and constructed by scientific methods although there cannot be a scientific view of teaching. Science is seen to produce knowledge that is propositional, general in nature, applicable to many different situations and problems, formulated in abstract terms, and often situated in a theoretical structure (Kessels and Korthagen 1996, p. 18). One point of highlighting these characteristics of scientific knowledge is to claim that knowledge with such characteristics is not needed by teaching. What is needed is something like practical wisdom or know-how. Two perceived flaws with using science as a guide to teaching are, first, that scientific thinking leads to the construal of teaching as the algorithmic application of technical knowledge to the solution of human, nontechnical problems (Carr 1995a) and, second, that scientific knowledge does not “even in principle capture the full character of practical situations” (Hirst 1993, p. 191). Leroi Daniels’s interpretation of John Eisenberg’s (1995) problems with rationality-based approaches to the solution of educational problems illustrates the same critique:

Eisenberg is against rationality [by which he means empirical research], as he characterizes it. This rationality has the following features: it is based on the approach of the hard sciences toward empirical things; it assumes a causal model of management and control of human affairs; it uses analysis, classifying, and “rigid scientific method” . . . in making predictions; it is pervasive—used not only in science, but in law, education, and other institutions; it is arrogant—sure of its plans, confident that all can be foreseen and results guaranteed; and it is a moderately bad beast when let loose in the land. (Daniels 1996, p. 183)

Analyses of university research-based knowledge along these lines have been used in a variety of ways in attempts to demonstrate how that knowledge belongs to a flawed paradigm for teaching. Eisenberg argued that university research disregards “the inherent indeterminacy of the situation, which is a key aspect of human existence” (1995, p. 371). An-

other criticism is that university research-based knowledge is unable to capture the inherent complexity of school situations. For example, Robert Owens wrote that “schools, as organizations, are complex and confusing places that are . . . filled with contradiction, ambivalence, ambiguity, and uncertainty . . . [so] many of the most important problems confronting school administrators are neither clear-cut nor amenable to technical solutions” (1991, p. 295). “Technical” is here used in the sense used by Donald Schön, who sees the application of research-based knowledge as technicalism. By contrast to the standards applied in such technical research, “a new definition of rigor is required” for practitioner research that is based on democracy, dialogue, and catalysis (Anderson and Herr 1999, p. 15). In addition to its inability to deal adequately with the inherent complexity and indeterminacy of school situations, another perceived problem is that university research-based knowledge and empirical theory incorrectly construe teaching as a causal process. “Thinking generally of educational perspectives in terms of theories tends inevitably towards an understanding of education as a sort of causal process” (Carr 1995a, p. 328). Often, the perceived problem with conceiving of teaching as causal is that “teaching is a prime example of the sort of activity in which almost all the important decisions which need to be made at a practical level are of a moral rather than a technical nature” (Carr 1995a, p. 323).

The thrust of the claims about university research-based knowledge and empirical theory examined in this section is that they are forms of knowing that not only fail to capture the nature of teaching but also are more radically flawed as bases for the improvement of teaching practice: they are not even relevant to the enterprise. Furthermore, if teachers attempt to take guidance from such research and theory, they effectively alienate themselves from their own practice. It is therefore recommended that teachers find other bases for their practice, namely, their own teacher-based knowledge and experience.

Elevating Teacher-Based Knowledge and Experience

The idea that teaching is practical rather than theoretical is sometimes used to uphold teacher-based knowledge as the source for teaching expertise. Thus, Carr (1992, p. 242) maintains that “education and teaching *are*, to be sure, matters of practice more than theory . . . education as a practical activity is in a very real sense *opposed* to theory.” Writing three years later, Carr compares teaching with hairdressing and with surgery and concludes that “teaching [is] rather more like hairdressing [because] we ought *not* to want to say that competent teaching requires a

thorough grasp of [research-based knowledge and empirical theory]" (1995a, p. 317). By contrast, the surgeon's competence can "be understood in terms of the direct technical application of [scientific knowledge]" (p. 315). One reason often posited for viewing teaching this way is that professional practice is a pursuit of goodness rather than a pursuit of truth (Beckett 1996; Carr 1992; Feldman 1996). Thus, in descriptions of research by and with teachers, it is said that "the primary goal of this research is not the generation of new knowledge . . . but the improvement of practice" (Feldman 1996, p. 516) and that the outcomes of such research might be "various combinations of facts, values, and assumptions . . . [rather] than conventional scientific theories" (Cochran-Smith and Lytle 1990, p. 7).

Such ideas are not new and have been used for centuries to justify experienced-based approaches to the training and professional development of teachers. In *The Great Didactic* of 1657, Comenius (in Cremin [1967]) viewed the analogy between teaching and other practical activities very much as Carr does: "Artisans do not detain their apprentices with theories, but set them to do practical work at an early stage; thus they learn to forge by forging, to carve by carving, to paint by painting, and to dance by dancing" (p. 105) and, by extension, to teach by teaching. Consistent with the view that teaching is practical and not theoretical is the view that knowledge useful for teaching is generated by a genre of research different from that used in the production of empirical theory, which is the type of research often associated with universities. Knowledge useful for teaching, it is sometimes advocated, is best produced by teachers doing research that "is essentially a new genre not necessarily bound by the constraints of traditional research paradigms" (Cochran-Smith and Lytle 1990, p. 4) but bound by "a new definition of rigor" (Anderson and Herr 1999, p. 15). It is assumed that "teachers will gradually evolve a set of criteria or standards to evaluate the usefulness of teacher research for teachers individually or collectively" (Lytle and Cochran-Smith 1990, p. 97), standards that sanction research outcomes because "they are personal, [are] retrospective, . . . [and provide the] perspective of a single teacher" (Lytle and Cochran-Smith 1990, p. 90) and that will not be disqualified because of practitioners' "personal stake and substantial emotional investment" (Anderson and Herr 1999, p. 13). The implicit message is that only knowledge generated by teachers engaged in this new genre of research will reflect what actually works in the classroom.

Associated with the idea that teacher research is qualitatively different from university research is the notion that teachers have a privileged access to knowledge about teaching. We are told, for example, that "research by teachers represents a distinctive way of knowing about teach-

ing and learning” (Cochran-Smith and Lytle 1992, p. 298) and that “teacher research . . . by definition has special potential to address issues that teachers themselves identify as significant . . . [and] that the questions teachers ask about theory and practice ought to be the starting points for classroom inquiry” (Cochran-Smith and Lytle 1990, pp. 4–5). A view taken on occasion is that teachers’ claims about what works in their classrooms are direct apprehensions of causal efficacy (e.g., Feldman 1996; Kessels and Korthagen 1996) and can be used effectively to override contrary conclusions from university-based inquiry (e.g., Floden 1996). This view is apparent in the words of one of my students. “Of course teachers are the ones who know most about teaching.” Gary Fenstermacher sees the same position expressed by Michael Connelly and Jean Clandinin, who he says “appear to grant the teacher’s insights the status of knowledge simply as a result of the teacher’s having given expression to his or her conception of what took place in the classroom” (1994, p. 13).

There is indeed a very strong temptation to believe that certain experiences are needed to acquire certain types of knowledge. For example, it might be thought that the only way to have full knowledge of the beauty of a glowing sunset is to have witnessed such a sunset with properly working eyes. According to this view, there is a knowledge of sunsets that people blind from birth cannot have. Thus, for example, Joseph Kessels and Fred Korthagen, drawing on visual metaphors, argue that through experience one develops an “eye” for paradigmatic or type cases and that “enough proper experience [is needed to have] the corresponding sort of insight” about teaching (1996, p. 20). They do not provide an account of how the propriety of experiences is to be judged or of how a correspondence between those experiences and insights is to be set up. However, it is clear that lacking certain experience means necessarily that the person must lack certain knowledge of teaching. A corollary of this view is that knowledge gained from having an experience cannot be passed to someone who has not had the experience. There is a gap that is unbridgeable by words. “The authority of experience simply does not transfer because it resides in having the experience” (Munby and Russell 1994, p. 93). According to such perspectives, the views of the following teacher must be endorsed: “How else do you know what it really is like today? . . . Well, I’m teaching in high school as well, so I know” (quoted in Munby and Russell 1994, p. 90).

Final arguments in the case for elevating teacher-based knowledge and experience are that it is “referenced to particular children and contexts” (Cochran-Smith and Lytle 1990, p. 6) and that it is “mainly perceptual, internal, and subjective” (Kessels and Korthagen 1996, p. 21). The thinking here is that, to teach particular students, knowledge of

those students that is acquired through experience with them is more valuable than knowledge of students in general. Given that research-based knowledge and theory are abstract and general, they cannot be trusted as much as experience to provide the knowledge needed to teach particular students. Rather than thinking from generalizations, teaching is physical doing with particulars: “The teacher has no time at all to reflect” (Beckett 1996, p. 135); “In the heat of the moment-by-moment action, justifications have no impact on judgments of how to go on” (Beckett 1996, p. 145). Any knowledge that is involved in teaching “is in major respects tacit or implicit” (Hirst 1993, p. 191).

The thrust of the claims about teacher-based knowledge and experience in this section is that they are the source of teaching expertise. This is so because teaching is a practical doing with concrete particulars, because the only way to learn how to do something is to do it, and because teachers are the ones who teach. The high value placed on teacher-based knowledge and experience as a source of teaching expertise stands in direct contrast to the low value placed on university research-based knowledge and empirical theory.

A Case for Maximal Widening of the Pale of Consideration

In this section, I shall examine the case for elevating teacher-based knowledge and experience and for undercutting university research-based knowledge and empirical theory from three perspectives: (1) its reliance on a foundationalist epistemology; (2) its assumption that university research-based knowledge and empirical theory must be directly and mechanistically applied, if they are to be used at all; and (3) its severe restrictions on what falls into the pale of consideration when seeking sources of teaching expertise.

Foundationalist Epistemology

Foundational theories of knowledge begin with the premise that knowledge is structured (e.g., Audi 1995, pp. 133–35, 276–78; Dancy and Sosa 1993, pp. 144–47). Most frequently, the structure is portrayed as two-tiered, with beliefs in the upper tier depending for their justification upon beliefs in the lower tier but not vice versa. In the previous section, reliance on a foundationalist epistemology is strongly suggested. The clearest indication comes in the discussion of experience as the source of know-how. For example, Kessels and Korthagen (1996) speak of the “proper experience” needed to have “the corresponding sort of in-

sight” (p. 20). According to their account, the insight is not possible without the experience, presumably because the insight is founded on that experience. Even more pointedly, Munby and Russell (1994, p. 93) claimed: “The authority of experience simply does not transfer because it resides in having the experience.” In other words, experience provides knowledge that is obtainable only by having the experience and provides knowledge that is authoritative. Presumably, knowledge that is authoritative in this sense is also foundational. Other, less direct ways of creating a hierarchy of knowledge also can be found in the literature surveyed. The idea that teaching is practical and not theoretical sets up, if not a hierarchy, then at least a categorical distinction between these realms. It is clear that Paul Hirst (1993) takes the view that the practical is more fundamental than the theoretical. This sentiment is found in the work of Carr, Cochran-Smith and Lytle, and Schön, who elevate the practical over the theoretical by arguing that theory alienates teachers from their practice. The justification for creating this hierarchy is that teachers are in a position that theoreticians are not in—they have access to something more fundamental about teaching.

Another reason for believing that the case for elevating teacher-based knowledge and experience is motivated by a foundationalist epistemology is the existence of claims for immunity from criticism. Foundationalism seeks foundations for knowledge that possess epistemic immunity, such as freedom from error, correction, or doubt. The level of immunity being claimed for teacher-based knowledge is strong. We are told that “teacher research . . . by definition has special potential to address issues that teachers themselves identify as significant” (Cochran-Smith and Lytle 1990, p. 4). To use the notion of definition to explain the relationship between teachers’ research and responses to their concerns is to suggest that the research has some form of epistemic immunity. A similar suggestion of immunity is made in discussion of teacher’s experience as “mainly perceptual, internal, and subjective” (Kessels and Korthagen 1996, p. 21). The level of immunity being claimed is not specified clearly, but the implication of immunity is found in the reference to perceiving. What is perceived by a conscious perceiver often has been offered as a candidate for the foundations of knowledge on grounds of its indubitability, incorrigibility, or infallibility.

The agenda of identifying elements of knowledge to serve as foundations for all other knowledge is rife with problems. So is the attempt to distinguish sharply the practical from the theoretical and doing from knowing and to set one above the other. I turn first to the distinctions. John Dewey has perhaps presented the strongest challenges to such dualisms. One of his clearest challenges was made with reference to science: “Just as in science the question of the advance of knowledge is the

question of *what to do*, what experiments to perform, what apparatus to invent and use, what calculations to engage in, what branches of mathematics to employ or to perfect, so *the* problem of practice is what do we need to *know*, how shall we obtain that knowledge and how shall we apply it?" (Dewey [1929] 1984, p. 30). So, on the one hand, research-based knowledge rests upon a practice (upon a doing), and, on the other hand, practices depend for guidance upon knowledge, often derived from research. Their separation, other than in thought, cannot be sustained. Therefore, it becomes difficult to comprehend what is meant by the assertion that research-based knowledge alienates teachers from their practice, because in order to decide what to do they must first determine what they know. Else, on what grounds do they proceed to act? Moreover, the knowledge that is supposed to alienate teachers from practice is itself based upon practice. Furthermore, the perspective that considers "practical knowledge to be more fundamental than theoretical knowledge" (Hirst 1993, p. 197) because the good grounds the true also proves troublesome once dualisms are rejected. The distinction between the true and the good can be challenged on the grounds that truth is a good, even a very highly prized good.

The attempt to identify foundations that cannot be challenged by other knowledge has not produced candidates that have survived scrutiny. Even beliefs based upon self-awareness, such as, for example, my beliefs that I am in pain, are not so foundational that they cannot be challenged in some contexts. Research in social psychology suggests that we do not have privileged access to the motives for our own actions (Nisbett and Ross 1980). Such research provides evidence that there are situations in which we can be wrong about our own motives and that, under certain conditions, an outside observer can be a more reliable source of knowledge of the motives for our actions than we are ourselves. Thus, it is not possible, as Cochran-Smith and Lytle (1990) suggested, that we can settle by definition the epistemic issue of what counts as reliable knowledge.

If foundations cannot be found, does this not suggest that claims about teaching are subject to scrutiny and challenge whatever their source? Kathy Carter (1993) has said, I believe wisely, "Despite our fondest wishes, we cannot escape the problems of interpretation and meaning either by ignoring them or by claiming to have overcome them. We can only deal with them self-consciously and directly, using whatever tools we can to track their influence on our thinking and resisting as strenuously as possible the impulse by ourselves and others to elevate a particular interpretation to the status of doctrine" (p. 10). Carter's diagnosis is consistent with a pragmatic interpretation of foundations as that which is being taken for granted and is not under scrutiny in a par-

ticular context (e.g., Quine 1953). The implication is that what is taken for granted in one context can be under scrutiny in another and that, considering all possible contexts, everything at one time or another can be subjected to scrutiny, doubt, and correction. If one were to adopt this more modest version of foundationalism, then teachers' beliefs about their classrooms could not be afforded epistemic immunity but could, depending upon the context, form foundations for the nonce. What such contexts would be and how to decide which they are are difficult issues. Suffice it to say that such issues cannot be settled by definition. If new standards of knowledge are proposed for teachers' research on their practice, then we must inquire into how such new standards might be defended against competition from traditional epistemic standards. In any case, rejection of empirical theory or research-based knowledge does not follow from any foundationalist position. Even if one were to accept foundationalism, there is nothing in it that warrants a distrust of theory or research-based knowledge or a claim that they are irrelevant to certain endeavors. The point of foundationalist epistemology is that theory and research-based knowledge receive their justification from below, that is, from experience or some other immune source. Once justified, they can serve as legitimate and trustworthy bases for action. However, one need not adopt the dubious views of foundationalist epistemology in order to accept this latter claim.

The Application of Empirical Theory and Research-Based Knowledge

As I have shown, in the attempt to elevate teacher-based knowledge and experience, university research-based knowledge and empirical theory are discredited on a number of grounds. Such knowledge was described as belonging to science and, as such, as a flawed paradigm for teaching because it fails to capture the full complexity of practical situations. For instance, Carr (1995*b*), in speaking of technical rules (which are one outcome of research-based knowledge, according to him), says that "technical rules are essentially abstractions from the concrete particularities of practice" (p. 141). Indeed, research-based knowledge and empirical theory do abstract from concrete particularities and indeed do fail to capture the full complexity of concrete systems that fall under their scope. However, this characteristic is not a flaw of the knowledge: no knowledge or theory can capture the full complexity of any real situation, and all knowledge is designed to focus upon selected features of phenomena. As Joseph Schwab said of theory more than three decades ago: "It abstracts a general or ideal case. It leaves behind the nonuniformities, the particularities, which characterize each concrete instance

of the facts subsumed” (1969, p. 11). Granted, to the extent that research fails to capture the full complexity of situations, it must fail to provide accurate descriptions of them. However, a failure of description does not imply an inability to furnish insight and understanding (Cartwright 1983, esp. chap. 2). No knowledge can mirror the world; no knowledge can have an algorithmically determined attachment to the world; knowledge is connected to the world more loosely than that. Nevertheless, some research-based knowledge and empirical theory afford deep insight, explanation, and understanding.

A related complaint, registered under the assumption that science is the study of causal relations, was that any research-based knowledge of teaching is necessarily causal and that teaching is not (primarily) causal. Although it certainly is the case that not all of teaching can be understood in causal terms, it is assuredly the case that not all of teaching can be understood while disregarding causality (e.g., Ennis 1982). Teaching is, in large measure, an attempt to effect learning in others, and this effort is a causal matter.

Research-based knowledge also was discredited on the grounds that it is general, as opposed to teacher-based knowledge and experience, which are taken to be particular. If what is meant by “general” is “without exception,” then the characterization does not hold for all cases of research-based knowledge: most of this knowledge is not exceptionless, even though it might be very widely applicable. If what is meant by “general” is “very widely applicable,” then the characterization can hold for teacher-based as well as research-based knowledge. For instance, when Cochran-Smith and Lytle characterize teachers as being concerned about whether their particular students are on their way to thinking like mathematicians (1990, p. 6), the teachers are concerned about knowing something general about these students, even though all of the particular students can be named. There is no way to say how much even a single person thinks like a mathematician without saying and presupposing something general about mathematicians and about that person. A similar confusion appears when Kessels and Korthagen argue that the appropriate criterion for deciding on concrete action is “what a concrete human being would do” (1996, p. 20). Rather than being the particularization that Kessels and Korthagen intend, however, to claim what a concrete human being would do is a paradigmatic claim to general knowledge. How else, other than on the basis of the general, is one to support a conditional prediction, even a prediction about a particular person?

We also saw the charge that research-based knowledge disregards the inherent indeterminacy in classroom situations and fails to capture all of the complexity in those situations. However, the only possible way to look at any situation is to choose to look at some features of it and

thereby, consciously or not, exclude the examination of others. Therefore, the complaint that a research approach misses features of teaching simply highlights a characteristic of research that is also a characteristic of every other manner of acquiring knowledge of teaching. A more important issue is whether the approach of abstracting some features to examine and others to ignore yields important results. Nancy Cartwright (1989) has argued that such abstraction is what enables the isolation and comprehension of underlying natural powers. Cartwright was speaking primarily of the natural sciences. However, her argument is easily extended to the social sciences (Bhaskar 1978). When an educational researcher studies pupils' motivation and ignores other factors affecting achievement and another researcher examines the influence of parents' expectations on achievement but not other factors, neither is studying the whole of the complex system of pupils, teachers, and social structures that is education. However, that is not to say they cannot acquire important knowledge about motivation and parental expectations. What they learn will not have direct applicability, as will be discussed soon, but it nevertheless can be intellectually powerful and practically useful knowledge.

Another complaint brought against research-based knowledge and empirical theory was expressed most forcefully by Schön (1992), who claimed that they alienate teachers from their practice. In taking this position, Schön claimed to take his lead from Dewey. However, Dewey was deeply suspicious of all dichotomies, including that between theory and practice. Indeed, Dewey saw experimental inquiry methods not as alienating one from practice but as the basis for practice and vice versa: "so *the* problem of practice," he said, "is what do we need to *know*, how shall we obtain that knowledge and how shall we apply it" ([1929] 1984, p. 30).

Finally, there is the charge of direct, mechanical, and technical applicability required of research-based knowledge and empirical theory. A prominent development in our understanding of theories and of generalized and abstract knowledge that took place during the latter half of the twentieth century is that they relate to concrete systems (phenomena) only insofar as they characterize those concrete systems using a small number of parameters abstracted from them (Cartwright 1989; Giere 1979, 1988; Suppe 1977, 1989). A theory does not—indeed cannot—characterize a concrete system in all of its complexity. Thus, a great many factors and causes characteristic of the concrete system fall outside the domain of the theory that is modeling it. In theorizing, "in effect, one assumes the fiction that no . . . other parameters exert an influence" (Suppe 1989, p. 95). The same characterization can be given for most research-based knowledge. The effect is that research-based

knowledge and empirical theory cannot be applied directly to practice. In the case of research-based knowledge about teaching, application must be mediated by teachers' appraisals of their situations based upon the intimate knowledge of them that their experience supplies (Norris and Kvernbekk 1997). The appraisals require teachers' judgments and decisions about their own students in their own classroom situations. No rules can be given for these judgments and decisions. Schwab has made much the same point in calling for arts in the application of theory: "first, arts which identify the disparities between real thing and theoretical representation; second, arts which modify the theory in the course of its application, in the light of the discrepancies; and, third, arts which devise ways of taking account of the many aspects of the real thing which the theory does not take into account" (1969, p. 12).

All other things equal, the situational appraisals made by teachers in order to mediate research-based knowledge and their concrete situations could not be as informed if made by someone unfamiliar with the students and the classrooms. This fact points to a way of addressing the concern that research-based knowledge could somehow alienate teachers from their practice that is more powerful than trying to discredit such knowledge. In applying research-based knowledge, there remains a crucial and irreducible role for the practitioner knowledgeable of the application situation. Therefore, research-based and teacher-based knowledge are equally important as sources of teaching expertise, and both are necessary. University research-based knowledge, no matter how complete and warranted, cannot be construed as prescriptive propositions about teaching and learning that alienate teachers from their practice. A different teacher, the same teacher with different students, or the same teacher with the same students at a different time might formulate different ways to mediate between the knowledge and his or her teaching situation. According to this view, the application of research-based knowledge cannot be construed, as it sometimes is (e.g., Schön 1983), as a technical activity, as an activity that is fully prespecified, is done by rote, and requires no professional judgment. The required mediation between abstract and general knowledge and concrete and specific situations is an activity requiring much professional competence and sound judgment.

I support the Deweyan view that "laws and facts, even when they are arrived at in genuinely scientific shape, do not yield *rules of practice*" (Dewey [1929–30] 1984, p. 14). Hirst's view that research-based knowledge does not "even in principle capture the full character of practical situations" (1993, p. 191) can be interpreted in this light, not as a criticism, but as a truism. Carr's pronouncements also can be examined more closely. His criticisms are directed toward knowledge that has the

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guise of a “practical science” (1992, p. 246) or that belongs to “a kind of quasi-scientific enterprise” (1992, p. 246). Carr seems to believe that educational research is vulnerable if it is conceived as scientific in nature, because it is widely believed that scientific research results are meant to be directly applicable. Failing direct applicability, the results are deemed irrelevant, and the conclusion is drawn to dispense with research-based knowledge altogether in the development of teaching expertise. My response is to reject from the outset any pretensions that science yields directly applicable knowledge and any need for an apology that uselessness ensues from a failure of direct applicability.

The Pale of Consideration for Teaching Expertise

Thus far, I have portrayed the following tension in a variety of guises: teachers’ experience with their own students and classrooms is thought to provide the knowledge of particulars that serves as the source of teaching expertise; research-based knowledge and empirical theory are not about any students or classrooms in particular but are about things in general and therefore are not useful as a source of teaching expertise. General knowledge of this sort is thought to be alienating for teachers because it provides guidance that can be at odds with teacher-based knowledge. This section provides an alternative way of thinking that avoids placing research-based knowledge and teacher-based knowledge in opposition.

A distinction between different ways of knowing lies under the surface of much of the perceived opposition. The distinction roughly is between the way of knowing typified by the explicit use of concepts and theory and the way typified by intuition and experience. Frequently expressed or presupposed is the view that teachers know their classrooms in this latter sense and educational researchers know in the former sense. An analogous distinction is discussed in the published correspondence between Bryan Magee and Martin Milligan, two noted British philosophers (Magee and Milligan 1995). Milligan had been blind since he was eighteen months old, when he had his eyes surgically removed to treat a cancer of the retina, and had no recollection of ever having seen. Magee invited Milligan to take part in a correspondence about what difference it made to Milligan’s knowledge of the world that he was blind. From Magee’s perspective, there must be differences in Milligan’s knowledge that resulted from his blindness. For example, Magee claimed that he did “not believe that blind people can understand visual terms to a *major* extent,” though they can do so to *some* extent” (Magee and Milligan 1995, p. 21). Magee postulated that what was central to understanding

the differences between knowledge possessed by the sighted and that possessed by the blind when it came to visual terms was the distinction between knowing and knowing about. Thus, although Milligan might know about sunsets, he could not know sunsets, because he had never seen one. The argument has considerable face-value plausibility and is precisely the same argument reported earlier in this article: only if you have taught, only if you have experienced the classroom as a teacher, can you know what it is like. The structure of the reasoning is that having some piece of knowledge depends upon having a precise kind of experience, and no other experience will do. It is the argument found in Kessels and Korthagen (1996, p. 20) when they speak of “proper experience” and its “corresponding sort of insight.”

Despite its apparent plausibility, Milligan rejected both the argument and the conclusion. From his perspective, there is no knowledge that is in principle inaccessible to blind people. He conceded that their means of arriving at certain pieces of knowledge may, as a result of their blindness, differ from that of sighted people and that coming to know can at times be more difficult because of blindness. Nevertheless, he contended that there is nothing in principle that a blind person cannot know that a sighted person can. The crux of Milligan’s counterargument is that experience, if it is nonconceptual, simply is not knowledge and that, if it is conceptual, then it is communicable to those who have not had the experience, making the knowledge yielded by the experience available to those others. Milligan’s argument is, I believe, definitive, although there are others, perhaps among them adherents of Michael Polanyi’s (1958) view of tacit knowledge, that would believe otherwise.

If a person lays claim to some knowledge, then it is completely reasonable to ask what that knowledge and its warrant are in order that we can make up our own minds about it. If the person claims that the knowledge is based on personal experience and is not communicable, then we are totally justified in concluding that the person either has no knowledge at all or is mistaken about its incommunicability. Any claim to knowledge is to be treated with proper suspicion if there is an attempt to grant it immunity from criticism built upon a claimed inability to communicate that knowledge to others. As Thomas Nagel (1997, pp. 30–31) recommends, to take any idea seriously one has to try to interpret it as a genuine alternative, and nothing is exempted from the requirements of intelligibility and credibility. To believe otherwise is to remove the idea from the arena of examination. Suspicion in the face of such a position is particularly appropriate in education, where it is especially important that claims to teaching expertise be open to public scrutiny.

Against the claim for the existence of different and equally valid ways of knowing, I set the following: No claim is infallible; Knowledge is pro-

visional. In practice, these dicta mean that there is no epistemically privileged foundation that sanctions an avoidance of the real calls for warrant that arise in concrete situations. Any claim to privilege can be questioned and challenged. Claiming privilege on the grounds of the source of knowledge (be the knowledge derived from teachers or educational researchers) is open to the challenge, among others, that the source of knowledge is only contingently related to its justification. Research by teachers or by educational researchers is not necessarily more justified than research by the other group. If one is more justified in a situation, this is partly a contingent matter, and evidence is required in order to demonstrate it. The demands for reasons and evidence are simply there and must be answered. Thus, the teacher cannot avoid such questions as the following: Why is your situation not an instance of such and such generalization? Why do you not need controlled studies to know what caused the students' performance? In kind, researchers must face such questions as the following: Why does your generalized finding extend to this case? Why should what occurs in my class be explained by your theory? Is there research that goes against yours?

These issues lead us to the resolution illustrated in the following section. It is based on the following epistemic principle: In order to count as reliable knowledge, any teacher-based or research-based claim about teaching expertise must be able to stand up to any challenge put to it; all challenges must be taken sufficiently seriously to determine their epistemic merit.

Teaching Expertise under a Maximally Widened Pale of Consideration

In this section, I consider two cases in which university research-based knowledge and empirical theory can be at odds with teacher-based knowledge and experience. By saying they are at odds, I do not mean that there are genuine logical contradictions. Rather, there is the high probability that following the university research-based knowledge would lead to one means of dealing with schoolchildren, following the teacher-based knowledge would lead to another means, and the different means likely would lead to different results of unequal educational value. The first case deals with practices surrounding the teaching of reading in the early school years, and the second focuses on motivational strategies and their effects on students' learning. Based upon the discussion in the previous section, I show how the application of research-based knowledge depends upon what teachers know of their classroom contexts and upon their ability to use this knowledge judiciously to mediate between the

general and abstract research-based knowledge and the specific and concrete systems that are their classrooms. Based upon the principle expressed at the end of the previous section, I show how teacher-based and research-based knowledge must each be judged in light of the other when there is conflict.

Identifying Poor Readers

Most schools have some procedure whereby teachers identify poor readers who need extra instruction. Often, the identified children are placed in special groups for remediation. In these special groups, boys traditionally outnumber girls four to one (Vogel 1990). One explanation of this phenomenon is that teachers make their recommendations influenced by their judgment that “boys are at greater risk for reading failure than girls” (Flynn and Rahbar 1994). This judgment is based upon teachers’ experience with boys and girls learning to read and is widespread among teachers of young children.

Try to imagine a particular teacher and the teacher’s class of primary school children. The teacher has made decisions about whom to refer to a special reading remediation group. What grounds should be used to appraise the teacher’s expertise in making these referrals? Should the teacher’s expertise be appraised on the grounds that the teacher is experienced (assuming that is so) and therefore knows what is most effective and right to do? Should appraisal be based on whether the teacher consulted the research literature? What should the appraisal be if the teacher’s judgments and the literature seem to clash?

The literature is relevant to the appraisal of referral decisions in a number of respects. Standardized tests of reading achievement typically show “no significant differences in the prevalence of reading disability for . . . boys compared with girls” (Flynn and Rahbar 1994, p. 66). Research in the area shows that teacher-identified special reading groups are subject to a referral bias that affects both boys and girls, leading to an underidentification of pupils of both sexes in need of remediation and to a greater underidentification of girls than of boys. The literature provides one account of the latter finding that posits that boys are referred in greater numbers because of their greater tendency to display aggressive and disruptive behavior. Girls, on the other hand, are not noticed unless their measured reading abilities are significantly lower than boys’ or until their reading difficulties are much more pronounced than those of boys.

Based upon conclusions drawn earlier in this article, two recommendations for the practical situation can be supported. First, the teacher

can be expected to consider seriously the research-based knowledge and empirical theory and to make referral decisions against the backdrop of that knowledge. Thus, the teacher must treat seriously the possibility that his or her judgment is subject to referral bias: either that there are children who should have been referred but were not or that children were referred for reasons that are not related to reading. The teacher cannot simply ignore the challenge mounted from the perspective of the university research-based knowledge and refuse to deal with it.

Second, the research-based knowledge cannot be applied recklessly or uncritically, even if it is judged applicable in the case at hand. The teacher will know that standardized tests of reading achievement are not perfect indicators of reading ability, and he or she likely will use additional indicators. Also, the teacher may have good reason to believe that particular children underperform or overperform on standardized measures. The teacher may also know that the research literature is divided on the stability of reading group membership, with some researchers maintaining “once a poor reader always a poor reader” and others maintaining that reading group membership is “porous.” Perhaps, also, the school is one in which teachers are acutely sensitive to referral bias and already have taken the research-based knowledge into account and adjusted their behavior in light of it, perhaps by involving the parents and children in the decision to refer. In this sense, educational settings and our knowledge about them are reflexive: “the chronic revision of social practices in the light of knowledge about those practices is part of the very tissue of modern institutions” (Giddens 1990, p. 40).

The teacher must have the authority to pass experienced judgment on issues involving the application of the research-based knowledge to his or her classroom, including to this child. The research knowledge is general and abstract and requires judicious mediation by the teacher knowledgeable of the current context to be informative of the real case. Nevertheless, just as the research-based knowledge, even if conceded to be generally true, may be rejected as not applicable in particular cases, so, too, the teacher’s knowledge and experience are not immune to criticism.

Using Motivational Strategies

The educational research literature describes students who exhibit what has been termed “helplessness,” meaning that they perceive an independence between their effort and their learning. They attribute their failures to their lack of ability (something outside their control) rather than to insufficient effort or perseverance (something within their control).

Typically, these children have an extrinsic motivational orientation, signaled by preferring less challenging activities, working to please the teacher and to obtain good grades, and depending upon others to evaluate their work. Children with an intrinsic motivational orientation, by contrast, learn for curiosity, prefer to be challenged, attempt independently to master tasks, and use their own judgment and criteria to assess success and failure. Teachers often use what have been called “controlling strategies” to motivate both types of students. Controlling strategies are attempts by the teacher to control or manipulate the child’s behavior. Many teacher behaviors fall into this category, including giving of rewards, praise, and punishment and the use of evaluative terms such as “should” or “ought to.” Students and parents generally rate teachers who use controlling strategies to be more competent, enthusiastic, and helpful than teachers who do not use such strategies (Boggiano and Katz 1991), and teachers believe the strategies work. In this context, what is the source of teaching expertise?

As in the former case, the research literature offers a body of empirical theory and findings on this topic. The theory maintains that “teachers’ use of controlling strategies . . . fosters in students an ‘extrinsic’ motivational orientation by emphasizing external reasons for learning—which in turn increases susceptibility to helpless achievement patterns. . . . [Controlling strategies] that are used to motivate students are actively interpreted by the children in a way that reduces . . . feelings of control . . . such that a student feels more like a ‘pawn’ rather than an ‘origin’ of learning in the classroom” (Boggiano and Katz 1991, p. 36). A corollary to the main hypothesis is that “use of controlling techniques over tasks that students deem enjoyable often reduces students’ subsequent intrinsic motivation to pursue activities when the controlling technique is no longer used. . . . This theory holds that the child perceives the reason for performing the activity as the controlling technique rather than interest in the task itself” (Boggiano and Katz 1991, p. 36). Some research concludes that even praise or positive feedback presented in a controlling context (e.g., “You did *very* well, as you should”) produce a boomerang effect; children come to have less interest in the school subject and increased interest in the reward. The evidence also shows that the presence of controlling strategies negatively affects children with an extrinsic orientation more than those with an intrinsic orientation: it worsens the performance of the extrinsics and decreases their desire to achieve, even though it often leads to increased effort among intrinsics. These findings become even more interesting in light of further evidence showing that parents and teachers prefer controlling techniques over other methods to motivate students (Boggiano and Katz 1991). Teachers who use noncontrolling strategies tend to be rated as less com-

petent by their students in comparison with teachers who use controlling strategies, despite the fact that noncontrolled students tend to perform significantly better than controlled students. The research shows that under the use of controlling techniques, children's rote learning may improve, but their conceptual learning and their motivation to continue learning decrease. And yet these effects go unnoticed by adults.

The theoretical account of these seeming contradictions in people's judgments is that the frequent pairing of reward with academic tasks for the purpose of increasing achievement results in the benefits of the rewards being more salient than the costs to the person giving the rewards. Rewards often do have positive effects, particularly in the short run and with intrinsics. If teachers, parents, and students observe immediate positive effects of reward on performance, then any negative long-term effects or negative effects within a subgroup may be overlooked or ascribed to factors other than reward. The theory is supported by the finding that "even when adults were given information that disconfirmed any positive beneficial effects of controlling strategies on students' performance level, their beliefs remained unaltered" (Boggiano and Katz 1991, p. 46).

Again, we have a situation in which questions arise over the source of teaching expertise. Should teachers and parents rely upon their own intuitions and experience with children and support teaching practices based upon those? Or, should they turn to the research and empirical theory on motivational strategies that might contemplate different teaching methods? In deciding what to believe and how to act, parents and teachers must face a number of issues and deal with them. For instance, the comparisons implied in the research-based studies are not available to the subjects in the studies or to teachers and students in the course of their everyday lives. That is, when a researcher draws a conclusion that students in a controlling context perform less well than students outside of such a context, that conclusion is drawn on the basis of information gathered under a research design that enables the researcher to identify students in each group and to make comparisons between them. Teachers, students, and parents make their judgments on the basis of evidence gathered in different ways. Typically, they do not have comparison groups identified by means of a designed study. Usually, they compare individual students or groups of students to themselves at two or more points in time. Using such a method of comparison often makes it difficult to arrive at warranted conclusions about what would have happened had things been done differently. This counterfactual issue cannot be ignored as irrelevant: it simply is there and must be answered. How, for instance, can alternative posits about students' performance be met? What response can be made to the posit based on the research litera-

ture that students do not perform as well in controlling situations, contrary to teachers', students', and parents' beliefs? There is no epistemic ground for teachers to avoid this question.

Having identified the burden that is upon teachers, parents, and students to defend their beliefs in the light of research-based evidence, even if the motivational theory is accepted, it cannot be applied directly to any classroom situation. The decision about which motivational strategy works for any given child is one that can be made only by somebody knowledgeable of the child and able to monitor the child's reaction. The theory and the evidence support various generalizations about the use of controlling strategies to motivate better learning. Even if the theory is correct, however, its generalizations may not apply to this child. This child may be an exception, who responds in other ways than the generalizations suggest. Even if this child is covered by the generalizations, it still takes judicious use of experience-based knowledge to apply them. Which particular teacher behaviors are and are not controlling? The theory does not answer this question for all possible behaviors and children. What balance between controlling and noncontrolling behaviors is right? The theory does not contain an outright injunction against controlling strategies or provide the optimum balance for each child. Indeed, controlling strategies work for some children in some contexts. What kind of child, precisely, is this child? The theory does not say. This child exhibits a multiplicity of characteristics and resists easy categorization. Nevertheless, categorization is essential if the theory and the generalizations are to be applied. Only someone whose familiarity with the child and his or her situation matches the degree of familiarity found among teachers can make these judgments. And what if the theory is not accepted? Surely, this option also is available. The controlled experimental method often employed in the sorts of studies of motivation examined here is not the only method that can be construed as good research. Under this challenge, those advocating the research-based conclusions have no epistemic choice but to treat the challenge seriously and to attempt to address it.

Summary and Conclusions

This paper focused on the sources of teaching expertise. The issue is sociopolitical, relating to the status of teachers including their professionalism and autonomy. The issue also is epistemological, because it concerns the nature of experiential and theoretical knowledge, the relationship of general and abstract knowledge to specific and concrete situations, and criteria for warranting claims to knowledge.

I concentrated selectively on that portion of the literature claiming that, when it comes to deciding how to teach, trust should be placed less in university research-based knowledge and empirical theory than in teacher-based knowledge and experience. University research-based knowledge and empirical theory are criticized as sources of teaching expertise because they are judged to be irrelevant to teaching, to alienate teachers from their practice, and to offer a flawed paradigm for teaching. Teacher-based knowledge and experience are elevated because teaching is practical, teachers have a privileged access to knowledge about classrooms, and teacher-based knowledge focuses on the particular. The goal of these arguments is to narrow the pale of consideration when judging teaching expertise.

I argued that three assumptions are at the base of these criticisms: (1) knowledge has foundations, (2) direct and mechanical application is the only means for using research-based knowledge, and (3) the pale of consideration for sources of teaching expertise is restricted properly to teacher-based knowledge and experience. I argued to the contrary (1) that teachers' experience cannot be taken as a source of knowledge immune to criticism and that, regardless of the foundational status of any knowledge, such ascription does not serve to discredit research-based knowledge and empirical theory; (2) that general and abstract knowledge can be applied only through the use of situational knowledge, is never directly applicable, and, no matter how complete and warranted, cannot be construed properly as prescriptive propositions about teaching; and (3) that all claims to knowledge are open to challenge and question and that demands for reasons are simply there and must be answered. That is, the pale of consideration for judging teaching expertise must be maximally wide.

I examined two cases in which research-based and teacher-based knowledge are at odds, in the sense that they support different means of dealing with students and produce different educational outcomes of unequal value. The first case treated the practices involved in helping young children who have difficulties learning to read, and the second considered the motivational strategies used by teachers and endorsed by students and parents and these strategies' effects on students' learning. In each case, I argued for two conclusions: that neither teacher-based nor research-based knowledge can avoid the challenges posed by the other and that the research-based knowledge, even if accepted, can be applied only through a judicious mediation between it and classrooms, which is made possible by teachers' firsthand knowledge of them.

The main implication of the analysis I have presented is that teaching expertise can rely neither solely on teacher-based knowledge and experience nor solely on university research-based knowledge and empirical

theory. Rather, it must be based upon a combination of these working in tandem in a particular fashion. A tendency to ask, when faced with a teacher-based justification for practice, "But what does the research have to say?" and to ask, when faced with a research-based justification, "But how does that research apply to this situation?" indicates an expertise built upon a combination. In adopting this combined position, the socio-political concerns over the possibility of teacher alienation and deprofessionalization can be met within a justification for teaching expertise that is epistemologically sound.

In order to arrive at the combined position, both teachers and university researchers must make certain acknowledgments. On the one hand, teachers must acknowledge that their "personal test for effectiveness" (Sanders and McCutcheon 1986, p. 66) can be in error. As Fenstermacher (1994) has said, "There is much merit in believing that teachers know a great deal and in seeking to learn what they know, but that merit is corrupted and demeaned when it is implied that this knowledge is not subject to justification or cannot or should not be justified" (p. 51). Or, as Huberman (1996) claimed, "reflection on experience can constitute valid knowledge on its own terms but cannot escape some overlap with the criteria for assessing 'truth' in a more deliberative universe like the academy" (p. 134). Teachers do not have a privileged access to knowledge about classrooms, even their own. More important, their position has a high probability of biasing their judgment. Teachers take actions to have intended effects. Thus, their actions and positive evidence of the intended effects are, for the teacher, salient features of the classroom environment and thus come more readily to mind in explaining the classroom than negative evidence and factors other than their own actions. There are grounds for trusting researchers more than teachers about what happens and what works generally in classrooms.

Having said this, the researcher also is not in a privileged position in judging what works in the particular classroom. Whether a given generalization, no matter how well supported by the evidence, applies to this classroom and, if so, in what ways and to what extent are not part of the researcher's knowledge. Generalizations from research do not contain the knowledge required for their own application. Furthermore, just as teachers' views of what works in their classrooms can be biased by the deliberateness of their actions, so can researchers' views of particular classrooms be biased by generalizations that they know to be true across many classrooms. There are grounds for trusting teachers more than researchers about what happens and what works in the particular classroom.

The solution to the difficulties in applying abstract and general knowledge to concrete and particular classrooms is not to search out new standards of knowledge. How could we possibly decide upon new standards,

except through judging them using the standards we have? Any new standards must be consistent with the demand that their acceptance be on the basis of good reasons, which is to accept them on the basis of the old standard. In the end, we have no other. Research-based knowledge and empirical theory are two sources for thinking about teaching expertise. They are there and must be taken into account. There is no option simply to ignore them on the basis of some new standard of knowledge, because the new standard of knowledge would have to provide good reasons for such disregard and, in so doing, would have to face squarely the very research-based knowledge and theory it aims to disregard. As Harvey Siegel (1996) has argued: "Once the issue is seen in terms of a conflict between rival conceptions . . . , all we can do is ask 'Which conception is more defensible?' Answering this question sets us off on the traditional project of seeking and evaluating reasons, and, thus, with taking seriously the epistemological issues that the advocates of the alternative vision of philosophy reject" (p. 15).

My stance perhaps will draw from someone the same criticism that Cochran-Smith and Lytle directed toward the views of Fenstermacher and of Huberman: "Those located squarely inside the dominant epistemological and methodological paradigms use established terms, conventions, standards, and definitions to evaluate, and essentially dismiss, alternative ones" (Cochran-Smith and Lytle 1999, p. 23, n. 4). I am not dismissing the views of Cochran-Smith and Lytle and others whose views I have reviewed. However, I do believe their views are erroneous in several respects, and I have given reasons for my beliefs. Many of these reasons do use established terms, conventions, and standards from epistemology. But this criticism cannot be regarded seriously unless those making it show what is wrong with the established ideas. To show this, they must rely on traditional epistemology to build their case: that is, the search for and evaluation of reasons.

Simply that research-based knowledge can be, and sometimes is, at odds with teachers' knowledge is no reason for teachers to feel alienated from their practice and to feel any less professional. Indeed, the professional response common among teachers is to face the conflict by acknowledging it, trying to understand it, dealing with it on its merits, and changing their minds when sound thinking leads down that route. Teachers do not have to ignore or violate traditional epistemological standards or invent new ones in order to avoid subservience to educational research and theory. Teachers can take seriously and accept as warranted the results of educational research as one basis of teaching expertise in full realization that such endorsements do not imply that the research can be applied directly and without discretion to their classrooms. How and whether research-based knowledge applies to a given

situation are questions that are answerable only by those who know the particulars of the situation. When the situations are particular classrooms, teachers know the most about them. Thus, teachers not only retain their autonomy and professional status, they assume a role in application of research-based knowledge and empirical theory that is front and center. This is as it must be. Teaching expertise cannot be founded on a range of considerations artificially narrowed to knowledge that finds its source in teachers. The pale of consideration must be maximally wide, in order to encompass all relevant knowledge, whatever its source.

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