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FOLK PEDAGOGY

Thoughtful people have been forever troubled by the enigma of applying theoretical knowledge to practical problems. Applying psychological theory to educational practice is no exception to the rule, not much less puzzling than applying science to medicine. Aristotle comments (rather touchingly) in the *Nichomachean Ethics* (Book V, 1137a): "It is an easy matter to know the effects of honey, wine, hellebore, cautery, and cutting. But to know how, for whom, and when we should apply these as remedies is no less an undertaking than being a physician." Even with scientific advances, the physician's problem is not much easier today than it was in the times of hellebore and cautery: "how, for whom, and when" still loom as problems. The challenge is always to *situate* our knowledge in the living context that poses the "presenting problem," to borrow a bit of medical jargon. And that living context, where education is concerned, is the schoolroom—the schoolroom situated in a broader culture.

That is where, at least in advanced cultures, teachers and pupils come together to effect that crucial but mysterious interchange that we so glibly call "education." Obvious though it may seem, we

would do better to concentrate in what follows on "learning and teaching in the setting of school" rather than, as psychologists sometimes do, generalizing from learning in a rat maze, from the nonsense-syllable learning of sophomores incarcerated in a laboratory cubicle, or from the performance of an AI computer simulation at Carnegie-Mellon. Keep before you a busy classroom of nine-year-olds, say, with a hard-working teacher, and ask what kind of theoretical knowledge would help them. A genetic theory that assures them that people differ? Well, perhaps, but not much. Do you work harder with the not-so-bright or ignore them? What about an associationist theory that tells you that nonsense syllables are associated with each other through frequency, recency, contiguity, and similarity effects? Would you want to design a curriculum on knowledge about how nonsense syllables are learned? Well, perhaps a little—where things are a little nonsense-like anyway, such as the names of elements in the periodic table: cerium, lithium, gold, lead . . .

There is one "presenting problem" that is always with us in dealing with teaching and learning, one that is so pervasive, so constant, so much part of the fabric of living, that we often fail to notice it, fail even to discover it—much as in the proverb "the fish will be the last to discover water." It is the issue of how human beings achieve a meeting of minds, expressed by teachers usually as "how do I reach the children?" or by children as "what's she trying to get at?" This is the classic problem of Other Minds, as it was originally called in philosophy, and its relevance to education has mostly been overlooked until very recently. In the last decade it has become a topic of passionate interest and intense research among psychologists, particularly those interested in development. It is what this chapter is about—the application of this new work to the process of education.

To a degree almost entirely overlooked by anti-subjective behaviorists in the past, our interactions with others are deeply affected by our everyday intuitive theories about how other minds work. These theories, rarely made explicit, are omnipresent but have only recently been subjected to intense study. Such lay theories are now referred to professionally by the rather condescending name of "folk psychol-

ogy." Folk psychologies reflect certain "wired-in" human tendencies (like seeing people normally as operating under their own control), but they also reflect some deeply ingrained cultural beliefs about "the mind." Not only is folk psychology preoccupied with how the mind works here and now, it is also equipped with notions about how the child's mind learns and even what makes it grow. Just as we are steered in ordinary interaction by our folk psychology, so we are steered in the activity of helping children learn about the world by notions of *folk pedagogy*. Watch any mother, any teacher, even any babysitter with a child and you'll be struck by how much of what they do is steered by notions of "what children's minds are like and how to help them learn," even though they may not be able to verbalize their pedagogical principles.

From this work on folk psychology and folk pedagogy has grown a new, perhaps even a revolutionary insight. It is this: in theorizing about the practice of education in the classroom (or any other setting, for that matter), you had better take into account the folk theories that those engaged in teaching and learning already have. For any innovations that you, as a "proper" pedagogical theorist, may wish to introduce will have to compete with, replace, or otherwise modify the folk theories that already guide both teachers and pupils. For example, if you as a pedagogical theorist are convinced that the best learning occurs when the teacher helps lead the pupil to discover generalizations on her own, you are likely to run into an established cultural belief that a teacher is an authority who is supposed to *tell* the child what the general case is, while the child should be occupying herself with memorizing the particulars. And if you study how most classrooms are conducted, you will often find that most of the teacher's questions to pupils are about particulars that can be answered in a few words or even by "yes" or "no." So your introduction of an innovation in teaching will necessarily involve changing the folk psychological and folk pedagogical theories of teachers—and, to a surprising extent, of pupils as well.

Teaching, in a word, is inevitably based on notions about the nature of the learner's mind. Beliefs and assumptions about teaching,

whether in a school or in any other context, are a direct reflection of the beliefs and assumptions the teacher holds about the learner. (Later, we will consider the other side of this coin: how learning is affected by the child's notion of the teacher's mind-set, as when girls come to believe that teachers expect them not to come up with unconventional answers.) Of course, like most deep truths, this one is already well known. Teachers have always tried to adjust their teaching to the backgrounds, abilities, styles and interests of the children they teach. This is important, but it is not quite what we are after. Our purpose, rather, is to explore more general ways in which learners' minds are conventionally thought about, and the pedagogic practices that follow from these ways of thinking about mind. Nor will we stop there, for we also want to offer some reflections on "consciousness raising" in this setting: what can be accomplished by getting teachers (and students) to think *explicitly* about their folk psychological assumptions, in order to bring them out of the shadows of tacit knowledge.

One way of presenting the general matter of folk psychology and folk pedagogy most starkly is by contrasting our own human species with non-human primates. In our species, children show an astonishingly strong "predisposition to culture"; they are sensitive to and eager to adopt the folkways they see around them. They show a striking interest in the activity of their parents and peers and with no prompting at all try to imitate what they observe. As for adults, as Kruger and Tomasello insist,[1] there is a uniquely human "pedagogic disposition" to exploit this tendency, for adults to demonstrate correct performance for the benefit of the learner. One finds these matching tendencies in different forms in all human societies. But note that these imitative and demonstrational dispositions seem scarcely to exist at all in our nearest primate kin, the chimpanzees. Not only do adult chimpanzees not "teach" their young by demonstrating correct performance, the young for their part seem not to imitate the actions of adults either, at least if we use a sufficiently stringent definition of imitation. If by imitation one means the ability to observe not just the goal achieved but also the means to that achievement, there is little evidence of imitation in chimpanzees raised in the wild[2] and, even

more conspicuously, little attempt at teaching. It is very revealing, however, that when a young chimpanzee is raised "as if" he were a human child, and exposed to the ways of humans, he begins to show more imitative dispositions.[3] The evidence on "demonstrational" dispositions in adult chimpanzees is much less clear, but such dispositions may also be there in a rudimentary form.[4]

Tomasello, Ratner, and Kruger have suggested that because non-human primates do not naturally attribute beliefs and knowledge to others, they probably do not recognize their presence in themselves.[5] We humans show, tell, or teach someone something only because we first recognize that they don't know, or that what they believe is false. The failure of non-human primates to ascribe ignorance or false beliefs to their young may, therefore, explain the absence of pedagogic efforts, for it is only when these states are recognized that we try to correct the deficiency by demonstration, explanation, or discussion. Even the most humanly "enculturated" chimpanzees show little, if any, of the attribution that leads to instructional activity.

Research on lesser primates shows the same picture. On the basis of their observations of the behavior of vervet monkeys in the wild,[6] Cheney and Seyfarth were led to conclude: "While monkeys may use abstract concepts and have motives, beliefs, and desires, they . . . seem unable to attribute mental states to others: they lack a 'theory of mind.'" Work on other species of monkeys reveals similar findings.[7] The general point is clear: assumptions about the mind of the learner underlie attempts at teaching. No ascription of ignorance, no effort to teach.

But to say only that human beings understand other minds and try to teach the incompetent is to overlook the varied ways in which teaching occurs in different cultures. The variety is stunning.[8] We need to know much more about this diversity if we are to appreciate the relation between folk psychology and folk pedagogy in different cultural settings.

Understanding this relationship becomes particularly urgent in addressing issues of educational reform. For once we recognize that a teacher's conception of a learner shapes the instruction he or she

employs, then equipping teachers (or parents) with the best available theory of the child's mind becomes crucial. And in the process of doing that, we also need to provide teachers with some insight about their own folk theories that guide their teaching.

Folk pedagogies, for example, reflect a variety of assumptions about children: they may be seen as willful and needing correction; as innocent and to be protected from a vulgar society; as needing skills to be developed only through practice; as empty vessels to be filled with knowledge that only adults can provide; as egocentric and in need of socialization. Folk beliefs of this kind, whether expressed by laypeople or by "experts," badly want some "deconstructing" if their implications are to be appreciated. For whether these views are "right" or not, their impact on teaching activities can be enormous.

A culturally oriented cognitive psychology does not dismiss folk psychology as mere superstition, something only for the anthropological connoisseur of quaint folkways. I have long argued that explaining what children *do* is not enough;[9] the new agenda is to determine what they *think* they are doing and what their reasons are for doing it. Like new work on children's theories of mind,[10] a cultural approach emphasizes that the child only gradually comes to appreciate that she is acting not directly *on* "the world" but on beliefs she holds *about* that world. This crucial shift from naive realism to an understanding of the role of beliefs, occurring in the early school years, is probably never complete. But once it starts, there is often a corresponding shift in what teachers can do to help children. With the shift, for example, children can take on more responsibilities for their own learning and thinking.[11] They can begin to "think about their thinking" as well as about "the world." It is not surprising, then, that achievement testers have become increasingly concerned not just with what children *know* but with how they think they came by their knowledge.[12] It is as Howard Gardner puts it in *The Unschooled Mind:* "We must place ourselves inside the heads of our students and try to understand as far as possible the sources and strengths of their conceptions."[13]

Stated boldly, the emerging thesis is that educational practices in classrooms are premised on a set of folk beliefs about learners' minds,

some of which may have worked advertently toward or inadvertently against the child's own welfare. They need to be made explicit and to be reexamined. Different approaches to learning and different forms of instruction—from imitation, to instruction, to discovery, to collaboration—reflect differing beliefs and assumptions about the learner—from actor, to knower, to private experiencer, to collaborative thinker.[14] What higher primates lack and humans continue to evolve is a set of beliefs about the mind. These beliefs, in turn, alter beliefs about the sources and communicability of thought and action. Advances in how we go about understanding children's minds are, then, a prerequisite to any improvement in pedagogy.

Obviously, all this involves much more than learners' minds. Young learners are people in families and communities, struggling to reconcile their desires, beliefs, and goals with the world around them. Our concern may be principally cognitive, relating to the acquisition and uses of knowledge, but we do not mean to restrict our focus to the so-called "rational" mind. Egan reminds us that "Apollo without Dionysus may indeed be a well-informed, good citizen, but he's a dull fellow. He may even be 'cultured,' in the sense one often gets from traditionalist writings in education. . . . But without Dionysus he will never make and remake a culture."[15] Although our discussion of folk psychology and folk pedagogy has emphasized "teaching and learning" in the conventional sense, we could as easily have emphasized other aspects of the human spirit, ones equally important for educational practice, like folk conceptions of desire, intention, meaning, or even "mastery." But even the notion of "knowledge" is not as peacefully Apollonian as all that.

Consider for example the issue of what knowledge is, where it comes from, how we come by it. These are also matters that have deep cultural roots. To begin with, take the distinction between knowing something concretely and in particular and knowing it as an exemplar of some general rule. Arithmetic addition and multiplication provide a stunning example. Somebody, say, has just learned a concrete arithmetic fact. What does it mean to grasp a "fact" of multiplication, and how does that differ from the idea that multiplication is simply repeated addition, something you already "know"? Well, for one thing, it means that you can *derive* the unknown from the known. That is a pretty heady notion about knowledge, one that might even delight the action-minded Dionysus.

In some much deeper sense, grasping something abstractly is a start toward appreciating that seemingly complicated knowledge can often be derivationally reduced to simpler forms of knowledge that you already possess. The Ellery Queen mystery stories used to include a note inserted on a crucial page in the text telling the reader that he or she now had all the knowledge necessary to solve the crime. Suppose one announced in class after the children had learned multiplication that they now had enough knowledge to understand something called "logarithms," special kinds of numbers that simply bore the names "1," "2," "3," "4," and "5," and that they ought to be able to figure out what these logarithm names "mean" from three examples, each example being a series that bore those names. The first series is 2, 4, 8, 16, 32; the second series 3, 9, 27, 81, 243, and the third series 1, 10, 100, 1,000, 10,000, 100,000. The numbers in each series correspond to the logarithmic names 1, 2, 3, 4, and 5. But how can 8 be called "3," and so too 27 and 1,000? Not only do children "discover" (or invent) the idea of an *exponent* or *power,* but they also discover/invent the idea of exponents to some *base:* that 2 to the third power is 8, that 3 to the third power is 27, and that 10 to the third power is 1,000. Once children (say around age ten) have gone through that experience, their conception of mathematical knowledge as "derivational" will be forever altered: they will grasp that once you know addition and know that addition can be repeated different numbers of times to make multiplication, you already know what logarithms are. All you need to determine is the "base."

Or if that is too "mathematical," you can try getting children to act out Little Red Riding Hood, first as a class drama with everybody having a part, then by actors chosen to represent the main characters to an audience, and finally as a story to be told or read by a storyteller to a group. How do they differ? The moment some child informs you that in the first instance there are only actors and no audience, but in

the second there are both, the class will be off and running into a discussion of "drama" to match Victor Turner for excitement.[16] As with the previous example, you will have led children to recognize that they know far more than they thought they ever knew, but that they have to "think about it" to know what they know. And that, after all, was what the Renaissance and the Age of Reason were all about! But to teach and learn that way means that you have adopted a new theory of mind.

Or take the issue of where you get knowledge, an equally profound matter. Children usually begin by assuming that the teacher has the knowledge and passes it on to the class. Under appropriate conditions, they soon learn that others in the class might have knowledge too, and that it can be shared. (Of course they know this from the start, but only about such matters as where things are to be found.) In this second phase, knowledge exists in the group—but inertly in the group. What about group discussion as a way of *creating* knowledge rather than merely finding who has what knowledge?[17] And there is even one step beyond that, one of the most profound aspects of human knowledge. If nobody in the group "knows" the answer, where do you go to "find things out"? This is the leap into culture as a warehouse, a toolhouse, or whatever. There are things known by each individual (more than each realizes); more still is known by the group or is discoverable by discussion within the group; and much more still is stored somewhere else—in the "culture," say, in the heads of more knowledgeable people, in directories, books, maps, and so forth. Virtually by definition, nobody in a culture knows all there is to know about it. So what do we do when we get stuck? And what are the problems we run into in getting the knowledge we need? Start answering that question and you are on the high road toward understanding what a culture is. In no time at all, some kid will begin to recognize that knowledge is power, or that it is a form of wealth, or that it is a safety net.

So let us consider more closely, then, some alternative conceptions about the minds of learners commonly held by educational theorists, teachers, and ultimately by children themselves. For these are what

may determine the educational practices that take place in classrooms in different cultural contexts.

Models of Mind and Models of Pedagogy

There are four dominant models of learners' minds that have held sway in our times. Each emphasizes different educational goals. These models are not only conceptions of mind that determine how we teach and "educate," but are also conceptions about the relations between minds and cultures. Rethinking educational psychology requires that we examine each of these alternative conceptions of human development and reevaluate their implications for learning and teaching.

1. Seeing children as imitative learners: The acquisition of "know-how." When an adult demonstrates or models a successful or skilled action to a child, that demonstration is implicitly based on the adult's belief that (a) the child does not know how to do x, and (b) the child can learn how to do x by being *shown*. The act of modeling also presupposes that (c) the child wants to do x, and (d) that she may, in fact, be trying to do x. To learn by imitation the child must recognize the goals pursued by the adult, the means used to achieve those goals, and the fact that the demonstrated action will successfully get her to the goal. By the time children are two years of age, they are capable, unlike chimpanzees raised in the wild, of imitating the act in question. Adults, recognizing children's proclivity for imitation, usually turn their own demonstrative actions into *performances*, acting in a way to demonstrate more vividly just what is involved in "doing it right." In effect, they provide "noiseless exemplars,"[18] of the act, preternaturally clear examples of the desired action.[19]

Such modeling is the basis of apprenticeship, leading the novice into the skilled ways of the expert. The expert seeks to transmit a skill he has acquired through repeated practice to a novice who, in his turn, must then practice the modeled act in order to succeed. There is little distinction in such an exchange between procedural knowledge (knowing how) and propositional knowledge (knowing

that). An underlying assumption is that the less skilled can be taught by showing, and that they have the ability to learn through imitation. Another assumption in this process is that modeling and imitating make possible the accumulation of culturally relevant knowledge, even the transmission of culture[20] from one generation to the next.

But using imitation as the vehicle for teaching entails an additional assumption about human competence as well: that it consists of talents, skills, and abilities, rather than knowledge and understanding. Competence on the imitative view comes only through practice. It is a view that precludes teaching about logarithms or drama in the way described earlier. Knowledge "just grows as habits" and is linked neither to theory nor to negotiation or argument. Indeed, we even label cultures that rely heavily upon an imitative folk psychology and folk pedagogy as "traditional." But more technically advanced cultures also rely heavily upon such implicit imitative theories—for example, on apprenticeships for transmitting sophisticated skills. Becoming a scientist or a poet requires more than "knowing the theory"[21] or knowing the rules of iambic pentameter. It is Aristotle and the physician all over again.

So what do we know about demonstration and apprenticeship? Not much, but more than one might suspect. For example, simply demonstrating "how to" and providing practice at doing so is known not to be enough. Studies of expertise demonstrate that just learning how to perform skillfully does not get one to the same level of flexible skill as when one learns by a combination of practice and conceptual explanation—much as a really skillful pianist needs more than clever hands, but needs as well to know something about the theory of harmony, about solfège, about melodic structure. So if a simple theory of imitative learning suits a "traditional" society (and it usually turns out on close inspection that there is more to it than that),[22] it certainly does not suit a more advanced one. Which leads us to the next set of assumptions about human minds.

2. Seeing children as learning from didactic exposure: The acquisition of propositional knowledge. Didactic teaching usually is based on the notion that pupils should be presented with facts, principles, and rules of action which are to be learned, remembered, and then applied. To teach this way is to assume that the learner "does not know that *p*," that he or she is ignorant or innocent of certain facts, rules, or principles that can be conveyed by telling. What is to be learned by the pupil is conceived as "in" the minds of teachers as well as in books, maps, art, computer databases, or wherever. Knowledge is simply to be "looked up" or "listened to." It is an explicit canon or corpus—a representation of the what-is-known. Procedural knowledge, knowing how to, is assumed to follow automatically from knowing certain propositions about facts, theories, and the like: "the square of the hypotenuse of a right triangle is equal to the squares of the other two sides."

In this teaching scenario, abilities are no longer conceived as knowing how to *do* something skillfully, but rather as the ability to acquire new knowledge by the aid of certain "mental abilities": verbal, spatial, numerical, interpersonal, or whatever. This is probably the most widely adhered to line of folk pedagogy in practice today—whether in history, social studies, literature, geography, or even science and mathematics. Its principal appeal is that it purports to offer a clear specification of just what it is that is to be learned and, equally questionable, that it suggests standards for assessing its achievement. More than any other theory of folk pedagogy, it has spawned objective testing in all its myriad guises. To determine whether a student has "learned" the capital of Albania, all one need do is offer him a multiple choice of Tirana, Milano, Smyrna, and Samarkand.

But damning the didactic assumption is too much like beating a dead horse. For plainly there are contexts where knowledge can usefully be treated as "objective" and given—like knowing the different writs under which a case can be brought under English common law, or knowing that the Fugitive Slave Law became an American statute in 1793, or that the Lisbon earthquake destroyed that city in 1755. The world is indeed full of facts. But facts are not of much use when offered by the hatful—either by teacher to student in class, or in the reverse direction as name dropping in an "objective"

exam. We shall return to this point later in considering our fourth perspective.

What we must concentrate upon here is the conception of the child's mind that the didactic view imposes on teaching—its folk pedagogy. In effect, this view presumes that the learner's mind is a tabula rasa, a blank slate. Knowledge put into the mind is taken as cumulative, with later knowledge building upon priorly existing knowledge. More important is this view's assumption that the child's mind is passive, a receptacle waiting to be filled. Active interpretation or construal does not enter the picture. The didactic bias views the child from the outside, from a third-person perspective, rather than trying to "enter her thoughts." It is blankly one-way: teaching is not a mutual dialogue, but a telling by one to the other. In such a regimen, if the child fails to perform adequately, her shortcomings can be explained by her lack of "mental abilities" or her low IQ and the educational establishment goes scot-free.

It is precisely the effort to achieve a first-person perspective, to reconstruct the child's point of view, that marks the third folk pedagogy, to which we turn now.

3. Seeing children as thinkers: The development of intersubjective interchange. The new wave of research on "other minds" described earlier is the latest manifestation of a more general modern effort to recognize the child's perspective in the process of learning. The teacher, on this view, is concerned with understanding what the child thinks and how she arrives at what she believes. Children, like adults, are seen as constructing a *model* of the world to aid them in construing their experience. Pedagogy is to help the child understand better, more powerfully, less one-sidedly. Understanding is fostered through discussion and collaboration, with the child encouraged to express her own views better to achieve some meeting of minds with others who may have other views.

Such a pedagogy of mutuality presumes that all human minds are capable of holding beliefs and ideas which, through discussion and interaction, can be moved toward some shared frame of reference. Both child and adult have points of view, and each is encouraged to

recognize the other's, though they may not agree. They must come to recognize that differing views may be based on recognizable reasons and that these reasons provide the basis for adjudicating rival beliefs. Sometimes you are "wrong," sometimes others are—that depends on how well reasoned the views are. Sometimes opposing views are both right—or both wrong. The child is *not* merely ignorant or an empty vessel, but somebody able to reason, to make sense, both on her own and through discourse with others. The child no less than the adult is seen as capable of thinking about her own thinking, and of correcting her ideas and notions through reflection—by "going meta," as it is sometimes called. The child, in a word, is seen as an epistemologist as well as a learner.

No less than the adult, the child is thought of as holding more or less coherent "theories" not only about the world but about her own mind and how it works. These naive theories are brought into congruence with those of parents and teachers not through imitation, not through didactic instruction, but by discourse, collaboration, and negotiation. Knowledge is what is shared within discourse,[23] within a "textual" community.[24] Truths are the product of evidence, argument, and construction rather than of authority, textual or pedagogic. This model of education is mutualist and dialectical, more concerned with interpretation and understanding than with the achievement of factual knowledge or skilled performance.

It is not simply that this mutualist view is "child-centered" (a not very meaningful term at best), but it is much less patronizing toward the child's mind. It attempts to build an exchange of understanding between the teacher and the child: to find in the intuitions of the child the roots of systematic knowledge, as Dewey urged.

Four lines of recent research have enriched this perspective on teaching and learning. While they are all closely related, they are worth distinguishing. The first has to do with how children develop their ability to "read other minds," to get to know what others are thinking or feeling. It usually gets labeled as research on *intersubjectivity*. Intersubjectivity begins with infant's and mother's pleasure in eye-to-eye contact in the opening weeks of life, moves quickly into

the two of them sharing joint attention on common objects, and culminates a first preschool phase with the child and a caretaker achieving a meeting of minds by an early exchange of words—an achievement that is never finished.[25]

The second line of research involves the child's grasp of another's "intentional states"—his beliefs, promises, intentions, desires, in a word his *theories of mind,* as this research is often referred to. It is a program of inquiry into how children acquire their notions about how others come to hold or relinquish various mental states. It is particularly concerned, as well, with the child's sorting of people's beliefs and opinions as being true or right versus being false and wrong, and in the process, this research has found out many intriguing things about the young child's ideas about "false beliefs."[26]

The third line is the study of *metacognition*—what children think about learning and remembering and thinking (especially their own), and how "thinking about" one's own cognitive operations affects one's own mental procedures. The first important contribution to this work, a study by Ann Brown, illustrated how remembering strategies were profoundly changed by the child turning her inner eye on how she herself proceeded in attempting to commit something to memory.[27]

Studies in *collaborative learning* and problem solving constitute the fourth line of new research, which focuses on how children explicate and revise their beliefs in discourse.[28] It has flourished not only in America but also in Sweden, where much recent pedagogical research has been given over to studying how children understand and how they manage their own learning.[29]

What all this research has in common is an effort to understand how children themselves organize their own learning, remembering, guessing, and thinking. Unlike older psychological theories, bent on imposing "scientific" models on children's cognitive activities, this work explores the child's own framework to understand better how he comes to the views that finally prove most useful to him. The child's *own* folk psychology (and its growth) becomes the object of study. And, of course, such research provides the teacher with a far

deeper and less condescending sense of what she will encounter in the teaching-learning situation.

Some say that the weakness of this approach is that it tolerates an unacceptable degree of relativity in what is taken as "knowledge." Surely more is required to justify beliefs than merely sharing them with others. That "more" is the machinery of justification for one's beliefs, the canons of scientific and philosophical reasoning. Knowledge, after all, is *justified* belief. One must be pragmatist enough in one's views about the nature of knowledge to recognize the importance of such criticism. It is a foolish "postmodernism" that accepts that all knowledge can be justified simply by finding or forming an "interpretive community" that agrees. Nor need we be so old guard as to insist that knowledge is only knowledge when it is "true" in a way that precludes all competing claims. "True history," without regard to the perspective from which it was written, is at best a mischievous joke and at worst a bid for political hegemony. Claims about "truth" must always be justified.

They must be justified by appeal to reasons that, in the logician's stricter sense, resist disproof and disbelief. Reasons of this kind obviously include appeals to evidence that defy falsifiability. But falsifiability is rarely a "yes-no" matter, for there are often variant interpretations that are compatible with available evidence—if not all of the evidence, then enough of it to be convincing.

There is no reason a priori why the third approach to teaching and learning should not be compatible with this more pragmatic epistemology. It is a very different conception of knowledge from the second perspective, where knowledge was taken to be fixed and independent of the knower's perspective. For the very nature of the knowledge enterprise has changed in our times. Hacking points out, for example, that prior to the seventeenth century an unbridgeable gap was thought to exist between knowledge and opinion, the former objective, the latter subjective.[30] What modernism sponsors is a healthy skepticism about the absoluteness of that gap. We are considering here not "analytic" knowledge—as in logic and mathematics—where the rule of contradiction has a privileged position (that

something cannot be both A and not-A). But even at the analytic level the view we are discussing casts a skeptical eye at the premature imposition of formal, logical forms on bodies of empirical knowledge outside the "hard" natural sciences.

In the light of all this, it is surely possible to take one step further in conceiving folk pedagogy—a step that, like the others we have considered, rests on epistemological considerations. At issue is how subjectively held beliefs are turned into viable theories about the world and its facts. How are beliefs turned into hypotheses that hold not because of the faith we place in them but because they stand up in the public marketplace of evidence, interpretation, and agreement with extant knowledge? Hypotheses cannot simply be "sponsored." They must be openly tested. "Today is Tuesday" turns into a conventional fact not by virtue of its being "true" but through conformity with conventions for naming the days of the week. It achieves intersubjectivity by virtue of convention and thereby becomes a "fact" independent of individual beliefs. This is the basis of Popper's well-known defense of "objective knowledge"[31] and of Nagel's view of what he calls "the view from nowhere."[32]

Issues of this order are precisely the ones that this third perspective most admirably and directly deals with. We now turn to the fourth and last of the perspectives on folk pedagogy.

4. Children as knowledgeable: The management of "objective" knowledge. Too exclusive a focus on beliefs and "intentional states" and on their negotiation in discourse risks overestimating the importance of social exchange in constructing knowledge. That emphasis can lead us to underestimate the importance of knowledge accumulated in the past. For cultures preserve past reliable knowledge much as the common law preserves a record of how past communal conflicts were adjudicated. In both instances there is an effort to achieve a workable consistency, to shun arbitrariness, to find "general principles." Neither culture nor law is open to abrupt reconstrual. Reconstrual is typically undertaken (to use the legal expression) with "restraint." Past knowledge and reliable practice are not taken lightly. Science is no

different: it too resists being stampeded into "scientific revolutions profligately throwing out old paradigms.[33]

Now to pedagogy. Early on, children encounter the hoary distinction between what is known by "us" (friends, parents, teachers, and so on) and what in some larger sense is simply "known." In these post-positivist, perhaps "post-modern" times, we recognize all too well that the "known" is neither God-given truth nor, as it were, written irrevocably in the Book of Nature. Knowledge in this dispensation is always putatively revisable. But revisability is not to be confused with free-for-all relativism, the view that since *no* theory is the ultimate truth, *all* theories, like all people, are equal. We surely recognize the distinction between Popper's "World Two" of personally held beliefs, hunches, and opinions and his "World Three" of justified knowledge. But what makes the latter "objective" is not that it constitutes some positivist's free-standing, aboriginal reality, but rather that it has stood up to sustained scrutiny and been tested by the best available evidence. All knowledge has a history.

The fourth perspective holds that teaching should help children grasp the distinction between personal knowledge, on the one side, and "what is taken to be known" by the culture, on the other. But they must not only grasp this distinction, but also understand its basis, as it were, in the history of knowledge. How can we incorporate such a perspective in our pedagogy? Stated another way, what have children gained when they begin to distinguish what is known canonically from what they know personally and idiosyncratically?

Janet Astington offers an interesting twist on this classic problem.[34] She finds that when children begin to understand how evidence is used to check beliefs, they often see the process as akin to forming a belief about a belief: "I now have reason to believe that this belief is true (or false, as the case may be)." "Reasons for believing" a hypothesis are not the same order of thing as the belief embodied in the hypothesis itself, and if the former work out well, then the latter graduates from being a belief (or hypothesis) to becoming something more robust—a proved theory or even a body of fact.

And by the same intuition, one can as easily come to see one's personal ideas or beliefs as relating (or not relating) to "what is known" or what is generally believed to have stood the test of time. In this way, we come to view personal conjecture against the background of what has come to be shared with the historical past. Those presently engaged in the pursuit of knowledge become sharers of conjectures with those long dead. But one can go a step further and ask how past conjecture settled into something more solid over the years. You can share Archimedes with seesaw partners on the playground, and know how he came to hold his view. But what about your interpretation of Kate in *Taming of the Shrew* as being like the class tomboy? That couldn't be what Shakespeare had in mind: he didn't "know about" her in that sense. So was there something else like that in his day? There is something appealing and, indeed, enspiriting about facing off one's own version of "knowledge" with the foibles of the archivally famous in our past. Imagine an inner-city high school class—it was a real one, mostly San Antonio Latinos—staging *Oedipus Rex*. They "knew" things about incest that Sophocles may never have dreamt of. It was plain to their gifted teacher/director that they were not in the least intimidated by the DWEM (Dead White European Male) who had written the play some two millennia ago. Yet they were true to the play's spirit.

So the fourth perspective holds that there is something special about "talking" to authors, now dead but still alive in their ancient texts—so long as the objective of the encounter is not worship but discourse and interpretation, "going meta" on thoughts about the past. Try several trios of teenagers, each staging a play about the astonishingly brief account in Genesis where Abraham at God's instruction takes Isaac, his only son, to sacrifice him to God on Mount Moriah. There is a famous set of "versions" of the Abraham story in Kierkegaard's *Fear and Trembling;* try that on them too. Or try out some teenagers on a dozen different reproductions of Annunciation paintings in which the Angel announces to the Virgin that she is to be Queen of Heaven. Ask them what they judge, from the various pictures, might be going through Mary's mind—in a painting where

Mary looks like a haughty Renaissance princess, in another where she resembles a humble Martha, in yet another where she looks quite a brazen young lady. It is striking how quickly teenagers leap across the gulf that separates Popper's subjective World Two from his "objective" World Three. The teacher, with class exercises like these, helps the child reach beyond his own impressions to join a past world that would otherwise be remote and beyond him as a knower.[35]

Real Schooling

Real schooling, of course, is never confined to one model of the learner or one model of teaching. Most day-to-day education in schools is designed to cultivate skills and abilities, to impart a knowledge of facts and theories, and to cultivate understanding of the beliefs and intentions of those nearby and far away. Any choice of pedagogical practice implies a conception of the learner and may, in time, be adopted by him or her as the appropriate way of thinking about the learning process. For a choice of pedagogy inevitably communicates a conception of the learning process and the learner. Pedagogy is never innocent. It is a medium that carries its own message.

Summary: Rethinking Minds, Cultures, and Education

We can conceive of the four views of teaching-and-learning just set forth as being ordered on two dimensions. The first is an "inside-outside" dimension: call it the *internalist-externalist* dimension. Externalist theories emphasize what adults can do for children from outside to foster learning—the bulk of traditional educational psychology. Internalist theories focus on what the child can do, what the child thinks he or she is doing, and how learning can be premised on those intentional states.

The second dimension describes the degree of intersubjectivity or "common understanding" assumed to be required between the pedagogical theorist and the subjects to whom his theories relate. Let us call this the *intersubjective-objectivist* dimension. Objectivist theories

regard children as an entomologist might regard a colony of ants or an elephant-trainer an elephant; there is no presumption that the subjects should see themselves in the same terms that the theorist does. Intersubjective theorists, on the other hand, apply the same theories to themselves as they do to their clients. Hence, they seek to create psychological theories that are as useful for the children in organizing their learning and managing their lives as they are for the adults that work with them.

Internalist theories tend to be intersubjective in emphasis. That is to say, if one is concerned with what the child is up to mentally, one is likely to be concerned with formulating a theory of teaching-and-learning that one can share with him or her in order to facilitate the child's efforts. But this is not necessarily so. Much Western cultural anthropology, for example, is internalist and very concerned with "how natives think." But anthropologists' theories are, as it were, not for the "natives" but for their colleagues back home.[36] It is usually assumed, however tacitly, that the natives are "different" or that they simply would not understand. And, indeed, some psychoanalytically oriented theories of early childhood pedagogy are of this same order—not to be shared with the child. Such theories are much occupied with the child's internal states, but like the native, the child is "different." The adult—theorist or teacher—becomes like an omniscient narrator in nineteenth-century novels: he knows perfectly what is going on in the minds of the novel's protagonist, even though the protagonist herself may not know.

Modern pedagogy is moving increasingly to the view that the child should be aware of her own thought processes, and that it is crucial for the pedagogical theorist and teacher alike to help her to become more metacognitive—to be as aware of how she goes about her learning and thinking as she is about the subject matter she is studying. Achieving skill and accumulating knowledge are not enough. The learner can be helped to achieve full mastery by reflecting as well upon how she is going about her job and how her approach can be improved. Equipping her with a good theory of mind—or a theory of mental functioning—is one part of helping her to do so.

In the end, then, the four perspectives on pedagogy are best thought of as parts of a broader continent, their significance to be understood in the light of their partialness. Nobody can sensibly propose that skills and cultivated abilities are unimportant. Nor can they argue that the accumulation of factual knowledge is trivial. No sensible critic would ever claim that children should not become aware that knowledge is dependent upon perspective and that we share and negotiate our perspectives in the knowledge-seeking process. And it would take a bigot to deny that we become the richer for recognizing the link between reliable knowledge from the past and what we learn in the present. What is needed is that the four perspectives be fused into some congruent unity, recognized as parts of a common continent. Older views of mind and how mind can be cultivated need to be shorn of their narrow exclusionism, and newer views need to be modulated to recognize that while skills and facts never exist *out* of context, they are no less important *in* context.

Modern advances in the study of human development have begun providing us with a new and steadier base upon which a more integrated theory of teaching-and-learning can be erected. And it was with these advances that this chapter was principally concerned—with the child as an active, intentional being; with knowledge as "man-made" rather than simply there; with how our knowledge about the world and about each other gets constructed and negotiated with others, both contemporaries and those long departed. In the chapters following, we will explore these advances and their implications still further.