3 (R) The Uncertainties of Teaching

by Philip Jackson

"A TEACHER AFFECTS ETERNITY," Henry Adams once wrote, "He can never tell where his influence stops."[1] That brief statement, a mere twenty syllables in all, must surely come close to being the perfect tribute to the teaching profession. For what nobler sentiment could there be than the one expressed in its first four words—"A teacher affects eternity"!—and what truer observation than that contained in the remaining eight? "He can never tell where his influence stops." Inspirational, accurate, concise. A combination hard to beat. Small wonder, then, that Adams's famous pat on the back to teachers, penned more than seventy years ago, retains its appeal to this day.

Yet however fine those twelve well-chosen words may be for chiseling into the granite portals of schools or onto the headstones of dear departed teachers, they leave much to be desired when read as commentary on the really troublesome uncertainties connected with the act of teaching. Adams never meant them to be read that way, of course. He obviously was more intent on paying respect to teachers than on being either descriptive or analytic about the details of their work.

But questions about the more mundane and worrisome aspects of the ignorance from which teachers sometimes suffer are not long in surfacing once we have been stirred to think about the more inspirational aspects of their work. After wondering for only a few seconds about the farthest reach of a teacher's influence, I find my own thoughts pulled back to more mundane matters, almost as if by gravity. "What about the minute-by-minute influence teachers have on the pupils seated before their very eyes?" I ask myself, "How much do they know about what's going on in the here-and-now, an arm's length or so away?"

[1] *The Education of Henry Adams*. (Boston: Houghton Mifflin Co., 1918), 300.

"Much less than they probably would like to know," comes back my own answer to that question. For what teacher has not frequently wondered whether this or that student really understood a particular point or whether the class as a whole was following the line of an argument or had grasped the moral of a tale? None that I know of. And how many teachers are left wondering about such matters long after their students have gone home for the day and even after they are no longer their students at all? The bulk of them, I would wager. Indeed, I suspect that all teachers find themselves in such a quizzical mood from time to time.

So though we may concede that Adams was right about a teacher's influence extending forward *ad infinitum* and about his never knowing where that influence *stops*, in the interest of accuracy we must balance that noble thought with the rather more cynical observation that in all likelihood our poor teacher often cannot tell for sure where his influence *starts*! Doubtless there are as well times *between* start and finish when he also finds himself more puzzled than he would like about the impact he is having on his students.

These more mundane forms of uncertainty are often quite unsettling to teachers, far more so, as a rule, than are any of the unknowns having to do with their *long term* influence. It is easy to see why this is so.

As a teacher I may never live to discover that my efforts have altered the course of human history by so much as a hair's breadth, and if it turns out they have, it truly is a pity that I shall never learn of it. But if I characteristically go home *each day* doubting whether *anything* I did or said had *any* effect whatsoever on *anyone*, I am in a sorry state indeed, no matter what my future rewards might turn out to be.

The public as well might get around to thanking me and my teaching colleagues one of these days, as it belatedly realizes what a force for the good we've been. The mere prospect of such an acknowledgment is pleasant to contemplate. But if tomorrow the public at large begins to suspect that the students we teach are not learning what they are supposed to learn or are not changing in other ways that supposedly justify their going to school, we teachers throughout the land had better take cover.

So the dual considerations of how well teachers think they are doing and how well the public thinks the schools are doing are inextricably tied to the underlying question of what is being taken away by students from their school experience at the end of each school day. Uncertainty about the answer to *that* question can be and often is

a source of genuine concern for teachers and for school people in general.

The possibility of teachers facing troubles of this degree of severity does not make them inevitable, of course. Some teachers may never encounter them at all. But the mere fact that we can easily *imagine* them tells us something about teaching that is worth pondering, something crucial to a full understanding of what the activity is all about.

A part of what it tells us has already been said: that teachers sometimes have a hard time proving their worth, even to themselves. Why this should be so is easy enough to understand. It derives in large measure from the fact that teaching, unlike masonry or brain surgery or auto mechanics or even garbage collecting, has no visible product, no concrete physical object to make or repair or call its own. Consequently, unlike workers in the forenamed and many other occupations, teachers suffer a distinct disadvantage. When their work is finished they have nothing tangible to show off as a fruit of their labor; no sturdy brick wall, no tumor-free brain, no smoothly purring engine, not even a clean back alley to point to with pride as evidence of a job well done.

Indeed, the very question of when the teacher's job is done, forget whether well or poorly, is problematic much of the time; it must be established by agreeing in advance upon some fairly arbitrary cutoff point, a time to call it quits, such as a date on the calendar or a set number of instructional sessions. Moreover, what is true of the termination of instruction is equally true of intervals along the way. Even the decision to end a single lesson is more often determined by the clock on the wall than by any judgment of pedagogical accomplishment.

Teachers are by no means alone in this regard, as should also be obvious. Consider, for example, the plight of ministers, priests, rabbis, therapists, performing artists, ambassadors of good will of all varieties—from office receptionists to public relations specialists—not to mention countless other workers whose chief concern is with how some special group of people think and feel about things. All lack a tangible product whose gradual transformation yields a clear-cut sign of progress. At the close of the day this large segment of our work force (teachers prominent among them) trudges home, figuratively speaking, empty-handed.

Just as we cannot say that teachers are alone in this regard, neither can we say that they are more discomforted by it than are others. Perhaps the reverse is true. Maybe receptionists, for instance,

are much more pained by the lack of concrete evidence of their effectiveness than are teachers. At the same time, it does seem reasonable to consider teachers apart from all others, if only because every occupation so burdened quite likely experiences this state of affairs somewhat differently and therefore might be expected to cope with it differently as well.

This likelihood sets the stage for what follows, which is to consider in some detail one major class of uncertainties connected with teaching—those having to do with the pupils' understanding or mastery of the material being taught. These are by no means the only uncertainties teachers face. Others could as easily have been chosen instead, as we shall presently see.

Moreover, because the circumstances of teaching and the characteristics of those who teach vary so from place to place and from time to time, what turns out to be puzzling and problematic for one teacher may not be so for another. What teachers of today look upon as a major source of concern may have been taken for granted, perhaps never even examined, by teachers a few generations back.

Despite these variations, certain commonalities *do* exist in the way teachers characteristically view their work. Among the latter is a perspective on teaching that is at once epistemological and psychological in outlook. Its epistemological slant derives from the fact that teachers almost everywhere conceive their job, at least in part, as having to do with the transmission of *knowledge* of one sort or another.

What this means in practice is that throughout their careers teachers are constantly embroiled in the question of whether somebody actually *knows* something or other (as opposed to not knowing it, merely appearing to know it, not having grounds for claiming to know it, and such other formulations used to describe ignorance). That question, as has been said, is epistemological in content and psychological in orientation.

Yet it would be incorrect to describe teachers as caught up with those questions in quite the way that either psychologists or epistemologists might be. For example, teachers are not typically concerned with the nature of knowledge *per se*. What distinguishes their epistemological puzzlement is its focus on knowledge that is or is not lodged, so to speak, in the minds of an identifiable (and usually clearly identified) group of people known as their students. In other words, when teaching is in progress one of the teacher's major worries takes the form of wondering *what is going on at this instant inside the heads or minds of the person or persons being taught*? Do they understand? Are they following me? Have they grasped the point? A parallel set of questions recur when instruction has ceased. *Did* they understand? *Did* they follow me? And so forth.

Questions such as these make manifest the psychological orientation of the teacher's perspective on his work. Broadly considered, his focus is epistemological, but his concern with each "bit" of knowledge is qualified by his worry about its location within the psyche of a specific person or group of people.

Nor can we describe the teacher's interest in such questions as academic, as we might those of a professional philosopher, let's say. The answers he gives to them have an important bearing not only on what his next pedagogical move will be but also on how well he thinks he has performed his work.

Teachers are not alone, of course, in raising questions of a nonacademic sort about what other people know or do not know. Almost everyone does so every day. Consider, for example, how many times each of us asks someone how to get somewhere or what the time of day might be.

There is a major difference, however, between the average questioner on the one hand, and teachers on the other: when the former asks whether a person does or does not know something, the forthcoming answer is not viewed as a partial function of what the questioner himself has done. The former, in other words, feels no personal responsibility for whether the knowledge is present and available or not.[2] Teachers, on the other hand, are not so situated. They are at least partially responsible for the answers to the questions they ask.

Another difference is that the knowledge most people inquire about during the course of day-to-day living is not of a "bookish" sort, whereas what interests most teachers decidedly is. The questions that come up in everyday affairs commonly deal with the here and now. They have to do with things like our plans for the day, how we feel about this or that, where we left the keys to the car, when our laundry will be ready, what time it is, and so forth. When the knowledge we are seeking *does* have a more abstract and generalizable quality—as when we ask someone for the dates of the Civil War or the formula for potassium nitrate—the exchange is properly de-

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[2] An exception is when we are telling something to someone and pause to inquire whether he understands. But in such an instance the posture of the questioner is decidedly "teacherish" in nature.

scribed as "teacherly" in nature, even though neither of the participants would describe himself as either a teacher or a student.

Having said this much about a teacher's epistemological and psychological orientation, we are ready to ask how he or she proceeds to answer the many questions having to do with whether things are going as anticipated. In short, how does he or she find out whether students are learning what they should?

My own observations of teachers reveal four distinct strategies for dispelling pedagogical uncertainty, at least insofar as it deals with the substantive content of what is being taught. Not every teacher may use them all, true enough, and the rare teacher who is only indirectly answerable for what is being learned—such as a lecturer on radio or television—may use none at all. Such exceptions aside, each strategy strikes me as being common enough to be quickly recognized by most teachers and probably by most laymen as well.

The first three occur while teaching is going on. The fourth takes place before or after the fact, when teaching either is yet to begin or has been brought to a halt, temporarily or permanently.

The least formal and the least intrusive of these four ways of investigating what is happening in classrooms is the common one of looking around the room for signs of students having difficulty with what is being taught. This form of visual monitoring is most readily observable when the teacher is delivering a lecture or conducting a discussion, though it sometimes occurs during the supervision of seatwork and study periods as well. What the teacher is looking for on such occasions are spontaneous signs of understanding and interest or the lack thereof, the sort of thing communicated by the looks on students' faces and their bodily postures. These would include nods of assent, smiles, frowns, furrowed brows, raised eyebrows, head scratching, fidgeting, droopy eyelids, and more, all of which speak volumes about how we feel about things, whether we want them to or not. Then there are all those less obvious clues, comprising what is sometimes called "body language," whose meanings we often decipher without being aware of doing so.[3]

[3]John Dewey, for one, clearly recognized the importance of the teacher's being sensitive to these fleeting signs of student involvement in the lesson. As he put it, "The teacher must be alive to all forms of bodily expression of mental condition—to puzzlement, boredom, mastery, the dawn of an idea, feigned attention, tendency to show off, to dominate discussion because of egotism, etc.—as well as sensitive to the meaning of all expression in words. He must be aware not only of *their* meaning, but of their meaning as indicative of the state of mind of the pupil, his degree of observation and comprehension." (Dewey, *How We Think* [Lexington, Mass: D.C. Heath and Company, 1933], 275.)

A colloquial way of talking about what is going on during this kind of visual search is to say that when they behave in this way teachers are trying to find out whether or not the students are *with* them or whether they are *following them* in their understanding. If the students are not, they are sometimes spoken of as being *lost* or *out of it*, a condition that calls for some kind of remedial action.

The reciprocal nature of this process is worth noting in passing. Though the primary purpose of the teacher's visual scan is to seek information about the extent of the students' understanding of what is being taught, the scan is functional in its own right. It serves as a warning signal, reminding students to remain attentive and alert. Thus, by simply looking about, the teacher creates the conditions for the realization of what is sometimes called a self-fulfilling prophecy.

The second strategy for finding out how well students understand the material being taught is not nearly as observable as the one just described, though it is every bit as common. The reason it can't be observed as easily as are smiles and frowns is that it has more to do with "classroom atmosphere," which takes quite awhile to establish, than with anything the teacher says and does within any single teaching session. The kind of "atmosphere" being referred to is one in which students feel comfortable admitting ignorance, letting their teacher and fellow students know that they do not know or cannot do something. How is such an atmosphere established? By invitation, to start with. By inviting students to raise their hands or come up to the teacher's desk when they are having difficulty. But the sincerity of that invitation requires treating all such revelations with sympathy and understanding. Only in this fashion do students come to know that it is safe *not* to know. Only then can they be expected to reveal their ignorance willingly.

Because the raising of hands to seek aid from the teacher has become such customary behavior in most classrooms, the formality of announcing it as a rule to be followed is often unnecessary. (On the contrary, calls for help in the form of raised hands come so thick and fast in many classrooms that the teacher is obliged to slow them up or stop them completely by requesting that questions be held until the end of class or until a natural break occurs in the session.) But whether formally announced or not, this second strategy to determine how students are coming along with their lessons is fully as commonsensical as the first. It consists of nothing more complicated or unusual than seeing to it that students know they are welcome to call for help when they are in trouble.

A third commonplace technique for finding out whether students understand what is being taught is to ask them directly while

teaching is underway. This type of questioning takes many forms, which vary chiefly in how precise they are, both with respect to the content of the question and the identification of the person or persons being asked.

At one extreme are very general queries addressed to no one in particular. These are often one-word questions, such as "Understand?" or "OK?" or "Right?" They usually call for little more than a nod of the head in reply. (Some teachers use this technique of questioning so habitually that they become hardly aware of doing so. I have witnessed more than one such teacher query his students with an "OK?" or "Get it?" while he himself was writing on the blackboard with his back turned to the class. Several students nodded in response to each question, but their nods went unseen by the teacher who continued to face the board as he moved ahead with his exposition of the material to be learned.)

At the other extreme, and much more interesting from a pedagogical point of view, are very specific questions addressed to particular students. Typically, the student being questioned is called upon to recite what he or she has learned about something or to demonstrate mastery of a skill by actually performing it. Pointed questions such as these usually cannot be ignored or "ducked" as can the more vague and general queries at the other end of the continuum. Thus, if the student does not know the answer or cannot perform as requested, he or she has no alternative but to reveal his or her ignorance to the teacher and, when the questioning is done in public, to fellow students as well.

The fourth procedure for seeking to find out what students have learned is the most formal of all. It occurs *outside* the instructional session itself, as has already been said, and entails the administration of tests, quizzes, exams, and a host of related activities. In addition to ordinary written tests, these include term papers, oral examinations, project reports, recitals, and a variety of other means of allowing or, more commonly, requiring students to display their newly acquired knowledge and skills. Because these procedures typically occur *after* a series of regular lessons, there ordinarily is an air of finality about them that is lacking in the three less formal methods that have been described.

Here, then, are four methods teachers commonly use to accomplish the complicated business of ascertaining what *is* going on or what *has* gone on in the heads or minds of their students. There may be other ways equally common, but I am unfamiliar with them. These, then, comprise what I look upon as a quartet of "classic"

strategies by which teachers seek to reduce the uncertainties they face, at least insofar as those uncertainties have to do with what students know or do not know. To repeat, the four are:

1. Observing students in search of visual and auditory signs of involvement.
2. Arranging for the admission of self-perceived difficulties.
3. On-the-spot questioning for evidence of understanding.
4. Examining for the acquisition and retention of knowledge and skill after instruction has ceased or during intervals when it has been temporarily suspended.

How successful these procedures turn out to be will depend, of course, on the skill and consistency with which each is employed. Some teachers are no doubt better than others in using them. Some teaching situations, in all probability, lend themselves more easily to their applications than do others. Each may help to reduce the teacher's uncertainty somewhat, but none will eliminate it completely. It is relatively easy to see why this might be so.

To start with, it is widely known that the outward signs of inner attentiveness and understanding can be faked. Thus the teacher who relies solely on looking around to determine who is following what is going on might be in for a big surprise if he or she were to employ more stringent standards for gauging that understanding. In all fairness, however, it also must be said that the same teacher may also have a pleasant surprise or two in store as well. The student who appeared to be dozing off in the far corner of the room may miraculously turn out to have been the most attentive of them all. Successfully faked attentiveness and mistaken inattentiveness thus become the two most common sources of error when applying the first and most effortless of the four methods that have been mentioned.

The practice of relying on students to signal their own difficulties has drawbacks of its own, no less obvious than what the teacher can see with his or her own eyes. Teachers may do everything in their power to create an atmosphere in which students feel free to speak their minds and confess to troubles as they arise; however, not everyone, even in the most nonthreatening environment, is willing or able to take advantage of such an opportunity. Consequently, no matter how much the teacher might encourage students to speak up on such matters, there will always remain the nagging suspicion that some students are having difficulties but are not saying so.

As we turn from these two more or less passive strategies to the

two more active ones—those involving questions the teacher puts directly to one or more students—we find their fallibility as methods to be somewhat different from those already mentioned, but no less troublesome. For example, those broad questions directed to the class as a whole through questions like "Understand?" or "Is that clear?" are so easy to answer falsely or to avoid answering at all that little more need be said about the potential inaccuracy of the information they provide. It is worth noting, however, that the answers given can be false in two ways. The student who nods his head when his teacher asks, "Understand?" may himself know that he doesn't *really* understand, but wishes to hide that fact from the teacher. However, it may also be the case that he *thinks* he understands (and therefore nods affirmatively) but actually does not. In both instances the student claims to know something he truly does not know, but in the first he is aware of his ignorance and in the second he is not.

On-the-spot questions with content, directed at particular students, may not leave the teacher guessing quite as much as do the more casual methods, but they are by no means error-free. If they are poorly worded, for example, the information they yield about a student's knowledge will be correspondingly ambiguous and hard to interpret. Moreover, once a question has been asked and answered in front of the rest of the students, its pedagogical usefulness is greatly diminished, if not fully spent. Teachers can and do follow up successful answers with queries like, "How many agree with Sarah?" but the reliability of the information received in reply is generally not much greater than when the teacher asks something like "Understand?"

As we move from the kind of questioning that goes on in class to the questions found in written tests, the same limitations apply as do those curtailing the usefulness of poorly worded on-the-spot questions. Although test questions are reusable in a way that in-class questions are not, that condition typically holds only if they remain a secret prior to the administration of the test. Once it is known that a specific question will be asked, its information yield is greatly diminished. This is so because most tests obviously do not include all the questions that could be asked about the subject at hand. Instead, they are a sampling, and sometimes not a very good one at that, from a larger pool of potential questions. Chiefly for this reason, they must remain confidential if the information they yield is to be of much use.

So much, then, for what seem to be some of the major sources of error in the standard procedures by which teachers try to find out how well students are dealing with the material being taught. There

are, however, two additional costs that help to explain why teachers frequently pass over the more formal procedures in favor of the less formal ones. One has to do chiefly with the economics and the day-to-day usefulness of the information, the other with the socially intrusive nature of pedagogical questioning.

The initial set of considerations can be easily and quickly dealt with. What gives them substance, most of all, is the rather obvious fact that on-the-spot questions and formal tests are costly. Both take time that presumably could be spent on instruction. Moreover, if they are made and scored by the teacher himself, we must add additional hours to the cost of their use.

Then there is the discouraging fact that the information provided by tests usually arrives too late to be of much help in making instructional decisions. By the time most tests are given it is too late to go back and do much in the way of remedial work. Thus, the cost factor plus the practical usefulness of the information obtained take us a long way toward understanding why quizzes, exams, and other evaluative devices are not used more widely and frequently than they are.

"The socially intrusive nature of pedagogical questioning" is a phrase intended to cover many different aspects of the questions teachers ask, along with what is gained or lost by their asking. Strictly speaking, not everything labeled "intrusive" is deserving of that term, but each does "intrude," in a manner of speaking, by introducing a foreign element of sorts into what is otherwise one of the most common of all verbal interchanges—questioning and answering. The special character of the questions teachers ask transforms a common social exchange into one that is clearly out of the ordinary and, under certain circumstances, downright odd.

The *genuinely* intrusive nature of pedagogical questioning is grounded in the fact that each such question is a threat. The average student, as we all know, does not relish taking tests. More than that, many students genuinely fear them. Why so? Because of the risks involved. For the student whose answers turn out to be incorrect, the consequences can be very unpleasant indeed.

But what such students fear is deeper and more profound than the revelation of ignorance *per se*. To see that this is so, we need but ponder an ordinary situation in which a person is forced to confess a lack of knowledge. Consider, for example, what happens when someone is asked the time of day and does not have a watch, or is asked how to reach a certain destination and does not know the way. In such a circumstance, most persons would not be bothered at all by

confessing their ignorance. They would simply say they didn't know and that would be that.

Not so in classrooms, however. There, faces redden and speech falters when a student is forced to admit that he or she doesn't know something. The reason for that difference, as we all know, is that students are *expected* to know the answers to the questions they have been asked, for the simple reason that such is what teaching is all about.

Thus, the first thing to keep in mind is that there are good reasons for at least some students wanting to avoid not only formal tests and final exams but also the teacher's direct questions when class is in session. Teachers know this, of course, and consequently are often reluctant to trigger the social tension that targeted questions or the announcement of an upcoming test introduce into their dealings with students. To keep their classes comfortable and relaxed, some teachers might go so far as to avoid all such procedures entirely.

As most teachers discover during the course of their careers, there are ways of taking most of the sting out of questioning. For example, one procedure for keeping "wrong" answers to a minimum is to address questions to the class as a whole, inviting only those who think they know the answer to speak up. This avoids much of the embarrassment created by calling on someone who must then admit ignorance, but it is by no means a foolproof way to avoid that embarrassment.

For one thing, not all volunteers are as smart as they think they are. Some turn out not to know the answers they seek to give. A few may even *know* they do not know, yet go on raising their hands on the chance that they won't be called upon anyway. But leaving aside the possibility of all such false information, the technique leaves the teacher in the dark with respect to all those students who do *not* volunteer. "Is it because they *don't* know the material," the teacher well may ask, "or are they simply reluctant to display their knowledge?"

Another way of keeping questions relatively unthreatening is to introduce humor into the situation, treating a wrong answer or the confession of ignorance as the occasion for some lighthearted remark designed to soften the blow. Still another technique is to applaud students for trying, even if they come up with the wrong answer. Experienced teachers doubtless could add to these examples until we had compiled a long list of ways to reduce the pain of testing. But no matter how many might be mentioned it is doubtful that all of them

combined would be enough to remove all the sting from tests and direct questions. Such a list would, however, stand as an impressive acknowledgment of how real that sting truly is.

The only sure way of avoiding the potential discomfort associated with teachers' questions is not to raise them to start with. In some teaching situations this may be accomplished by sticking with the first two procedures—visual monitoring and the inviting of questions from students themselves—while foregoing all targeted queries from the teacher. This works best where the teacher/pupil relationship is quite informal and of brief duration, as, for example, in a public lecture. The speakers at such affairs, most of whom may properly be thought of as teachers, may occasionally wonder how much their audience has actually gained from what was said, but they seldom bother to ask. And for very good reason, of course. They might quickly lose their audience if they did! In most classroom situations, however, it is difficult to avoid direct questioning completely if the teacher, and sometimes the public as well, is not to be burdened by an intolerable amount of uncertainty.

Teachers' questions also differ from ordinary queries in that teachers usually know the answers in advance. What they do *not* know is whether their *students* know the answers. When most people ask questions they do so because they genuinely lack the information being sought. They seek it, in other words, *for its own sake*, and not for what it tells them about some more remote or secondary condition. There are obvious exceptions to this generalization, as a moment's reflection quickly attests. Sometimes, people ask questions just to be polite—e.g. "How are you?"—without being genuinely interested in the answer. They also at times ask questions rhetorically, without expecting any answer at all. Such exceptions notwithstanding, the generalization that most questions are asked for the sake of the answer given still holds.

Thus it is that whenever we have reason to suspect that a person asking a question already possesses the information being sought, we are naturally inclined to wonder about the motive behind the request. "If he already knows, why is he bothering to ask?" is the bluntest way of putting it. That question is a natural one to raise in most such situations.

The exception, as has been said, is when the questioner is a teacher. Teachers commonly ask questions whose answers they already know. They do so because they do *not* know whether the student being questioned can answer correctly. In other words, the

teacher's real interest, in most instances, is in *the student's mastery* of the knowledge or skill in question, rather than the content of the answer *per se*.

This motive behind teachers' questions is no big secret to most people. Save for the very beginners in our schools—those in kindergarten or thereabouts—most students know full well that when a teacher asks a question it usually is to find out whether they (the students) know or can do something; it is not a search for an answer unknown to the teacher. Teachers themselves seldom go out of their way to disguise this fact.

At the same time, though it may be necessary for teachers to ask the questions they do, there remains something unnatural about their customary way of doing so. Unlike most questioners, teachers could as easily give the answer to the question as ask it. Everyone (save the very youngest students) may well understand that such a situation holds in most classrooms, but that understanding is usually insufficient to totally dispel the lingering suspicion that teachers are somehow less sincere, at least when it comes to asking questions, than are most other people.

Moreover, it is not just that teachers typically know the answers to the questions they ask which gives rise to the suspicion of their being insincere in the asking. There are deeper reasons for the mistrust that is often occasioned in such circumstances. To see why this is so we need consider two features of the conditions under which teachers typically ask questions.

The first of these features has to do with how close questioning follows on the heels of instruction. The second has to do with a common habit among teachers, which is to press on with their questioning after having been assured by their students that understanding has been achieved or that learning has taken place. Both such practices are perfectly understandable when we consider teaching as a total enterprise, but they do contribute to the mistrust already spoken of, all the same. To see why this might be so, consider the possible reasoning behind the teacher's actions. If a teacher has just taught something, what would make him wonder if students had learned it? And if students have already *told* their teacher that they have learned something, why would he or she then proceed to question their word?

The answer to the first of those two questions is much easier to give than is the answer to the second. The simple truth is that there are countless ways in which teaching might possibly go awry. All manner of mishap may account for something having gone wrong

between the teacher's *delivery* of some piece of knowledge (or his recommendation that it be obtained from somewhere else such as a textbook), and its safe deposit in the student's memory bank or neurological network (or however one wishes to speak of its resting place within the person).

The student may not have heard what was said or seen what was done. He may have received the message but failed to comprehend its meaning. He may have understood perfectly a short while back but have now forgotten what he once knew. He may simply have failed to read the assignment and thus never come upon the knowledge in the first place. The possibilities go on and on. Thus, there are all kinds of reasons for a teacher to be curious about how successful his or her teaching has been as well as to check up on whether students have completed the work assigned them.

But let's say that such a query has been made and the student being questioned assures the teacher that he or she understands the material or has successfully completed the requisite assignment. Why should the teacher not take the student's word for it? Why press the matter further? The answers to those questions are also obvious to anyone who has been either a teacher or a student, which is to say almost everyone, but the fact that such pedagogical probes are understandable does not dissipate the air of distrust that often accompanies them. To see why this is so, consider the following hypothetical situation.

Suppose a gift of china is sent as a wedding present to the home of a prospective bride. A few days later the gift-giver calls the home of the bride-to-be to see if the gift arrived safely. "Yes it did," is the answer received. "I'd like to see for myself," the caller replies, "I'll drop by this evening if it's convenient."

What's strange about that situation? The obvious answer is: gift-givers don't usually insist on seeing that their gift has arrived safely once the recipient has assured them it has. To do so is to say, in effect, "I don't trust what you have told me. I must see for myself." Such a lack of trust is almost bound to be insulting, no matter how justifiable the gift-giver's worries about the safe receipt of the item that had been sent.

Though teachers are not exactly gift-givers, at least not like the one described, a close parallel with the social dynamics of that description occurs whenever a teacher begins by asking a student if he or she understands something and then proceeds to insist on the display of that understanding. "Did the knowledge arrive?" asks the teacher. "Yes," nods the student. "Let me see," says the teacher.

"What's the matter, don't you believe me?" the student inquires. "Sure I do," the teacher replies, "it's just that . . . ."

That what? The answer, I fear, is that a nugget of distrust *does* lie at the bottom of the teacher's demand for hard evidence of the student's knowledge, whether or not he or she wants to acknowledge it. Moreover, though we might wish it were otherwise, that distrust often turns out to be justified. Like it or not, people might have several good reasons to hide the fact that they do not know something, even people who are usually honest about most other things.

For one thing, an admission of ignorance is just plain embarrassing in many social situations. This is especially true when the knowledge in question is taken to be a mark of social status or prestige. For another, it reveals a deficit whose correction may be insisted upon. To admit we do not know something is to present ourself as a candidate for teaching.

Both of these consequences of admitting ignorance are heightened within classrooms. There the revelation of ignorance is particularly discomforting, especially when it follows on the heels of direct instruction. The student who confesses to not knowing what the teacher or the textbook has just finished teaching has obviously failed at what is clearly the central mission of the teaching enterprise. That failure may or may not be excusable. Perhaps the student failed to listen attentively, perhaps she failed to read the assignment, perhaps the teacher did *his* job poorly, but no matter what the explanation it remains a failure all the same.

Thus it is not very surprising to find that many students will not voluntarily reveal their ignorance about academic matters and will sometimes seek to keep it hidden even under direct questioning. So the suspicions underlying the teacher's mode of questioning are by no means unwarranted. Indeed, they are completely reasonable in the light of what we know about human nature. But the legitimacy of the teacher's suspicions does not make the act of putting them to rest any easier for either party. It is awkward, to say the least, to have to check up on people. And it is demeaning, if not downright insulting, to have to be checked up on. Legitimate they may be, but suspicions they remain.

Much has been said so far about the social and personal discomfort that can and often does surround the teacher's use of direct questions and tests, but this is not intended as an argument in favor of abandoning those practices in classrooms. On the contrary, if teachers are to fulfill their professional responsibilities they often

have no choice but to insist that students display their newly acquired knowledge, or lack thereof, no matter how painful or embarrassing such a disclosure may be.

Although we acknowledge the necessity of teachers' questions, we can simultaneously begin to understand why we might find them used less frequently in practice than pedagogical theory might seem to dictate. In other words, we can start to see why many teachers might prefer to live with the uncertainty of not knowing for sure whether their students have in fact learned what was taught, even though all they have to do to find out is ask. The cost of obtaining that information must be weighed not only against its potential discomfort to individual students but also against the strain it puts on the social relationships within the classroom as a whole. We may condemn the teacher who avoids such discomfort at all costs, just as we might condemn the parent who never disciplines his or her child, but in both cases we can at least understand the motives behind their reluctance to act.

Up to this point our exposition of the uncertainties teachers face and their methods of coping with them has stayed within the embrace of a very familiar, if not uniformly popular, way of looking at the teacher's job. To give it a label, we will call the perspective taken thus far the "knowledge reproduction" point of view.[4] More metaphorically, the same perspective might be dubbed something like "the warehouse conception of school learning."

Essentially this view treats knowledge as a commodity of one kind or another that is deposited within a student's mind (or nervous system, if you prefer), where it remains, save for the ravages of memory loss and cerebral accidents, until it is called forth by the student or retrieved on command by some outside source. The essential point is that the stored knowledge is expected to retain its original shape, whether for inspection or use. In these terms the teacher's uncertainty about his or her success as a transmitter of knowledge

[4]This is not to be confused with the phrase "knowledge reproduction" as it appears in recent neo-Marxist critiques of our educational system. See, for example, Pierre Bourdieu and Jean-Claude Passeron, *Reproduction in Education, Society, and Culture* (London: Sage Publications Ltd., 1977). In essence, the latter set of critics charges that our schools are being used to "reproduce" the current distribution of knowledge (and therefore ignorance) in our society, thereby perpetuating existing social class, ethnic, and racial divisions within the country at large. As the phrase is used here it is completely devoid of all such critical overtones and bears no relation whatsoever to the neo-Marxist argument.

boils down to whether the material he or she believes to have delivered (or ordered sent) has actually arrived safely and is currently in storage where it is readily retrievable by the students.

This uncertainty is commonly relieved simply by asking the student to show a receipt of some kind (a nod of understanding is often good enough) or, if need be, by asking that the goods be delivered for inspection (usually a sample will suffice). Much of teaching and much of testing conform to this model.

Although this way of looking at what teachers do has been severely criticized by educational reformers for centuries—usually on the grounds that it is too mechanical a model or because it places too much emphasis on rote memory—there can be no doubt, like it or not, that it does capture an important piece of truth about schooling. Only thus can we explain its endurance over the years.

But the recurrent criticism of this view by thoughtful educators makes it equally clear that the piece of truth it contains is not the whole cloth. Not all of schooling conforms to the "knowledge reproduction" model—perhaps not even the most important part at that. John Dewey, for example, had this to say about the inadequacies of the metaphors commonly employed to embody the "knowledge reproduction" point of view.

> It is hardly an exaggeration to say that too often the pupil is treated as if he were a phonograph record on which is impressed a set of words that are to be literally reproduced when the recitation or examination presses the proper lever. Or, varying the metaphor, the mind of the pupil is treated as if it were a cistern into which information is conducted by one set of pipes that mechanically pour it in, while the recitation is the pump that brings the material out again through another set of pipes. Then the skill of the teacher is rated by his or her ability in managing the two pipelines of flow inward and outward . . . . The mind is not a piece of blotting paper that absorbs and retains automatically. It is rather a living organism that has to search for its food, that selects and rejects according to its present conditions and needs, and that retains only what it digests and transmutes into part of the energy of its own being.[5]

To give a name to the "living organism" view that Dewey espoused, we will call it the "knowledge *transformation*" model, thus differentiating if from the "knowledge *reproduction*" point of view that

[5]John Dewey, *How We Think* (Lexington, Mass.: D.C. Heath and Company, 1933), 261-262.

has already been explicated. Its emphasis is upon the process whereby knowledge is assimilated or transformed or otherwise adapted to fit within the learner's system of habitual thought and action. Within the physical world the closest analogy to this epistemological transformation is obviously the one Dewey himself used—the physiological process of digestion.

What interests us within the present context is what such a shift of metaphors does to the uncertainties of teaching. The changes they undergo are radical indeed. Under the transformation model the teacher is no longer primarily concerned with whether some fragile commodity called knowledge has arrived safely and is properly stored somewhere in its original carton, so to speak. Rather, the central questions now have to do with such things as how the knowledge in question is being used by the learner, how it relates to what was learned before, how it becomes personalized by being translated into the learner's own language, how it becomes applied to new situations, and so forth. In cognitive terms the focus is no longer on the power of memory alone. It now encompasses levels of mental functioning that customarily fall under the rubrics of "judgment" and "understanding."

Something else happens when we change metaphors. Not only are the teacher's uncertainties more numerous and more complex than before, but they are of a different nature entirely. No longer can the knowledge-sent/knowledge-received comparison be judged by a standard that approximates the philosopher's correspondence theory of truth. In the reproduction model, it will be recalled, what is "withdrawn" from the student during questioning or testing is essentially the same, structurally speaking, as what was "deposited." Ideally, the two are identical. Under the transformation model, however, the before and the after, so to speak, no longer match up.

In other words, not only is the teacher uncertain whether or not his or her students will be capable of answering questions correctly; she or he is also no longer quite sure of what questions to ask. The teacher's total approach to the task must be more exploratory and open-ended. Under the transformation model the teacher is not only searching for answers, but searching for questions as well.

The greater complexity of the questioning process under the knowledge transformation model, plus the fact that it is more "organically" derived and therefore presumably more suited to human affairs, may make it seem decidedly superior to the knowledge reproduction point of view as an outlook to be adopted by teachers everywhere. Such has been the judgment of countless educational re-

formers, from Comenius forward. All have hailed some form of an educational model whose metaphors derive from life processes as a decided advance over earlier and more "mechanical" perspectives.[6]

But the real issue is not whether the knowledge transformation point of view is inherently superior to the knowledge reproduction outlook. Rather, it is: When is one or the other the most helpful way of thinking? For example, in foreign language teaching the knowledge reproduction view seems quite appropriate much of the time. The same may be true of many other subjects whose goal is to have students reproduce with precision what they have learned.

If, as seems true, certain subject matters may be better suited to the application of one model rather than the other, it would follow that teachers of different subjects will be faced with different degrees and kinds of uncertainty. It is also probable that whichever way of looking at the process is adopted, the business of conveying knowledge is sometimes treated more casually than at other times by both the teachers and students involved and by the public at large as well. In short, we worry more about whether some people are knowledgeable, in either a reproductive or a transformative sense, than we do others. For example, we seem to care more whether a physician "knows his stuff" than we do, say, about a florist. Consequently, we would expect teachers in a medical school to be somewhat more conscientious and demanding about asking questions and giving tests than we would teachers of floral design.

The overall level of such worries seems to change over time as well. Right now we appear to be in the middle of a period of heightened interest in the outcomes of schooling, particularly at the secondary level and below. Consequently, we hear a lot of talk these days about such notions as educational accountability and minimal competency testing. How long the present trend will continue remains to be seen. But so long as such a mood prevails teachers are bound to feel additional pressure upon them to seek "hard" evidence of what is or is not being learned by their students.

However and whenever both the knowledge reproduction and the knowledge transformation models are employed as tools of

[6]The urgent pleading for this change in root metaphors still goes on. Myron Atkin of Stanford University and Ernest House of the University of Illinois, for example, have recently called for a shift from "metaphors drawn from factory production" to "biological imagery" when thinking about educational change. See M. Atkin and E. house, "The federal role in curriculum development, 1950-1980," *Educational Evaluation and Policy Analysis* 3, Number 5 (September-October, 1981), 33.

thought, together with the assortment of metaphors that serve to make them concrete, they are limited in one and the same way. Both refer exclusively to the acquisition of knowledge as the proper end of education.

Naturally, no one would argue that knowledge should *not* be central to any conception of educational goals. That much can be granted at the start. But it is certainly reasonable to ask whether "knowledge," however defined, covers all that schooling and education are about. Historically, at least since ancient Greece, the answer to that question has been no.

For centuries schools have sought to do many other things above and beyond the passing along of knowledge, whether conceived of "mechanically" or "organically." They have tried to form character, to develop habits, to arouse interests, to change attitudes, to create values, and more. Knowledge of one kind or another may be an essential component of all such undertakings, but whether it is *all* that matters is a question that has concerned educators and philosophers for centuries.[7] Today's practicing educators—the handful of Mr. Gradgrinds among them set aside—seem unanimous in believing that there is a world of difference between the transmission of knowledge *per se* and the goal of developing character or arousing social consciousness or any of the other broad goals that have been historically associated with the mission of the schools.

This being so, the question now becomes: What happens to the uncertainties of teaching when we move to aims that are not strictly epistemological in character? What do we do to determine whether attitudes are really changing or appreciations developing or any of the other things happening that, as educators, we would so like to see?

Under such circumstances, are there questions to ask and tests to give? A few perhaps. In seeking to assess the development of a proper set of attitudes, for example, one can administer written tests in much the same manner as is done for factual knowledge. We must note, however, that the interpretation of the answers to such tests is considerably trickier than is true for straightforward tests of knowledge.

[7]Socrates, for one, claimed that virtue was knowledge, by which he meant that the only reason people did not behave virtuously was because they lacked proper knowledge concerning the consequences of their actions, or something of that sort. However, despite its historical significance, Socrates' argument remains less than totally convincing.

For the most part, however, the questioning procedures fitted to the epistemological goals of schooling cannot be adopted whole cloth to help teachers resolve those uncertainties that arise from efforts to attain other, quite different, educational ends. Indeed, it is entirely possible that some aspects of a teacher's influence are not to be revealed by *any* sort of question, not even by the most skillful teacher or test-maker.

There are even times, it seems, when the most sensible thing for a teacher to do at the end of a lesson is to remain silent and in so doing to make peace with whatever uncertainties he or she may have. Elizabeth Hardwick, teacher and author, describes one such occasion. "It's hard to say anything about a fine short story," she tells us. "I know from teaching that I would ask the class to read Chekhov and all I could think to say to them was, 'Isn't he wonderful!'" Most gifted teachers, I would warrant, have had similar moments of speechlessness.

On such rare yet glorious occasions the question of whether a tiny kernel of knowledge is or is not lodged in somebody's head seems trivial. So does much else. Sometimes when things are going their very best in classrooms questions of all sorts seem strangely out of place. At such moments our thoughts may well return with profit to Henry Adams and his famous saying about all the things teachers will never know. With each day of teaching that host of uncertainties confronts us anew.

Insofar as the farthest reach of a teacher's influence is concerned—the portion receding beyond the limits of human vision—Henry Adams in his famous quotation certainly hit the nail on the head. But, had he been content with a less lofty though more accurate observation, he could as easily have used the close at hand as a starting place. "Near and far," he might have said, "the limits of a teacher's influence remain forever obscure." Therein lies the fate of all who teach—from here to eternity, uncertainties galore.

4 REAL TEACHING

THERE USED TO BE A GAME SHOW on television some years back whose format was as simple and straightforward as it was entertaining. The show's panelists—four "TV personalities" as they are usually called—were introduced to successive trios of strangers, each made up of one person who worked at some unusual occupation, such as taming lions or cutting diamonds, plus two others of the same sex and supposedly the same name who claimed to be similarly employed but were actually imposters. The point of the game was to identify the honest member of each trio by asking all three of them questions about the line of work in which they claimed to be engaged. When the time limit for questions had been reached and each of the contestants had made a guess as to which of the three was telling the truth, the show's announcer would call upon the *real* Mister or Miss So-and-So to stand and be identified. Cries of surprise, followed by laughter and applause, crowned the departure of each trio of contestants.

That once popular show, called "To Tell the Truth," invariably comes to mind whenever my thoughts turn to the question of what teaching is like as an occupation and how it might be defined. It does so because the show's format reminds me of an experience I had some time ago as a newly appointed principal of a nursery school. That experience is itself worth describing in some detail, for it introduces in a rather dramatic if lighthearted way the questions to be examined in this chapter.

I was a newcomer to both school administration and nursery schools at the time. Consequently, in order to familiarize myself with the institution and how its teachers behaved I spent as much time as I could during my first few weeks on the job poking about the school as a complete stranger might, watching what was going on and trying to get a feel for the place. The teachers, who wanted to get to know me as much as I did them, warmly welcomed me to their classrooms. Their doing so made the experience as enjoyable as it was informative.

As the days wore on I slowly became aware of certain things the