



TEACHING, LEARNING AND THEIR COUNTERFEITS

Mortimer Adler

EVERYONE KNOWS, or certainly should know, that indoctrination is not genuine teaching and that the results of indoctrination are the very opposite of genuine learning. Yet, as a matter of fact, much that goes on in the classrooms of our schools is nothing but indoctrination. The results that are measured by our standardized tests are not products of genuine learning.

All learning is either by instruction or by discovery—that is, with or without the aid of teachers. The teachers who serve as instructors may be alive and in direct contact with those whom they instruct, as is always the case in classrooms or tutorials, or they may be present to the learner only in the form of books. The teacher who instructs by his writings cannot engage in discussion with those who are reading his works in order to learn; he can ask them initial questions, but he cannot ask any second questions—questions about answers they give to his initial questions. He is,

therefore, seriously limited in his performance of the art of teaching, though he may have done what he could to apply the rules of that art in his effort to communicate what he knows.

That the effort to communicate what a man knows is not, in itself, effective teaching follows from the fact that such efforts are seldom if ever successful and, at best, they succeed only in part. Successful teaching occurs only when the mind of the learner passes from a state of ignorance or error to a state of knowledge. The knowledge acquired may be either something already known by the teacher, or something about which he himself is inquiring. In either case, the transformation effected in the mind of the learner is learning by instruction only if another human being has taken certain deliberate steps to bring about that transformation. What the teacher does must be deliberately calculated to change the mind of the learner. Merely motivating someone to learn is not enough; stimulation is not teaching.

Since whatever can be learned by instruction must necessarily have been learned first by discovery without the aid of teachers, it follows that teachers are, absolutely speaking, dispensable. Nevertheless, they are useful because most human beings need instruction to learn what they could have learned by discovering it for themselves. If we recognize, as we should, that genuine learning cannot occur without activity on the part of the learner (passive absorption or rote memorization does not deserve to be called learning), then we must also recognize that all learning is a process of discovery on the part of the learner.

This alters our understanding of the distinction between learning by discovery and learning by instruction. If the latter is not to be identified with passive absorption or rote memorization, then the distinction divides all active learning into two kinds—unaided discovery, discovery without the aid of teachers, on the one hand; and aided discovery, or discovery deliberately assisted by teachers, on the other. In both cases, the principal cause of learning is activity on the part of the learner engaged in the process of discovery; when instruction occurs, the teacher is at best only an instrumental cause operating to guide or facilitate the process of discovery on the part of the learner. To suppose that the teacher is ever more than an instrumental cause is to suppose that the activity of a teacher can by itself suffice to cause learning to occur in another person even though the latter remains entirely passive. This would view the learner as a patient being acted upon rather than as an agent whose activity is both primary and indispensable. In contrast,

the instrumental activity of the teacher is always secondary and dispensable.

These basic insights are epitomized by Socrates when, in the *Theaetetus*, he describes his role as a teacher by analogy with the service performed by a midwife who does nothing more than assist the pregnant mother to give birth with less pain and more assurance. So, according to Socrates, the teacher assists the inquiring mind of the learner to give birth to knowledge, facilitating the process of discovery on the learner's part.

Teaching, like farming and healing, is a cooperative art. Understanding this, Comenius in *The Great Didactic* again and again compares the cultivation of the mind with the cultivation of the field; so, too, Plato compares the teacher's art with the physician's.

In arts such as shoemaking and shipbuilding, painting and sculpture (arts which I call "operative" to distinguish them from the three cooperative arts), the artist is the principal cause of the product produced. Nature may supply the materials to be fashioned or transformed, and may even supply models to imitate, but without the intervention of the artist's skill and causal efficacy, nature would not produce shoes, ships, paintings, or statues.

Unlike the operative artist, who aims either at beauty or utility, the cooperative artist merely helps nature to produce results that it is able to produce by its own powers, without the assistance of the art's—without the intervention of the artist's accessory causality. Fruits and grains grow naturally; the farmer intervenes merely to assure that these natural products grow with regularity and, perhaps, to increase their quantity. The body has the power to heal itself—to maintain health and regain health; the physician who adopts the Hippocratic conception of the healing art attempts to support and reinforce the natural processes of the body. The mind, like the body, has the power to achieve what is good for itself—knowledge and understanding. Learning would go on if there were no teachers, just as healing and growing would go on if there were no physicians and farmers.

Like the farmer and the physician, the teacher must be sensitive to the natural process that his art should help bring to its fullest fruition—the natural process of learning. It is the nature of human learning that determines the strategy and tactics of teaching. Since learning which results in expanded knowledge and improved understanding (rather than memorized facts) is essentially a process of discovery, the teacher's art consists largely in devices whereby

one individual can help another to lift himself up from a state of knowing and understanding less to knowing and understanding more. Left to his own devices, the learner would not get very far unless he asked himself questions, perceived problems to be solved, suffered puzzlement over dilemmas, put himself under the necessity of following out the implications of this hypothesis or that, made observations and weighed the evidence for alternative hypotheses, and so on. The teacher, aware of these indispensable steps in the process by which he himself has moved his own mind up the ladder of learning, devises ways to help another individual engage in a similar process; and he applies them with sensitivity to the state of that other person's mind and with awareness of whatever special difficulties the other must overcome in order to make headway.

Discipline in the traditional liberal arts imparts the skills by which an individual becomes adept at learning. They are the arts of reading and writing, of speaking and listening, of observing, measuring, and calculating—the arts of grammar, rhetoric, and logic, the mathematical arts, and the arts of investigation. Without some proficiency in these arts, no one can learn very much, whether assisted or not by the use of books and the tutelage of teachers. Unless the teacher is himself a skilled learner, a master of the liberal arts which are the arts of learning, he cannot help those he attempts to teach acquire the skills of learning; nor can his superior skill in learning provide the learner with the help he needs in the process of discovery. The teacher must put himself sympathetically in the position of a learner who is less advanced than himself, less advanced both in skill and in knowledge or understanding. From that vantage point, he must somehow reenact—or simulate—for the learner the activities he himself engaged in to achieve his present state of mind.

The Hippocratic understanding of healing as a cooperative art provides us with analogical insights into the cooperative art of teaching. Hippocrates, whom we in the West regard as the father of medicine, wrote treatises setting forth the rules of healing as a cooperative art. They were rules for controlling the regimen of the patient—the food he ate, the air he breathed, his hours of waking and sleeping, the water he drank, the exercise he engaged in, and so forth. By controlling the patient's regimen—his diet, his hours, his activities, his environment—the physician helps the body to heal itself by its natural processes.

Administering drugs, introducing foreign substances into the body, Hippocrates regarded as the least cooperative of all medical treat-

ments. Surgery he regarded as a drastic measure to be resorted to only when all cooperative methods failed; it was, strictly speaking, an operative rather than a cooperative procedure.

In the sphere of teaching, the analogue of surgery is indoctrination, the result of which is rote memorization, or some passive absorption of information without any understanding of it. Indoctrination does violence to the mind, as surgery does violence to the body, the only difference being that there is never any excuse for indoctrination, while there can be justification for surgery.



Teachers who regard themselves as the principal, even the sole, cause of the learning that occurs in their students simply do not understand teaching as a cooperative art. They think of themselves as producing knowledge or understanding in the minds of their students in the same way that shoemakers produce shoes out of pliable or plastic materials.

Only when teachers realize that the principal cause of the learning that occurs in a student is the activity of the student's own mind do they assume the role of cooperative artists. While the activity of the learner's mind is the principal cause of all learning, it is not the sole cause. Here the teacher steps in as a secondary and cooperative cause.

Just as, in the view of Hippocrates, surgery is a departure from healing as a cooperative art, so, in the view of Socrates, didactic teaching, or teaching by lecturing or telling rather than teaching by questioning and discussion, is a departure from teaching as a cooperative art.

Lecturing is that form of teaching which is analogous to the use of drugs and medication in the practice of medicine. No violence may

be done to the mind if the lecturer eschews any attempt at indoctrination; but the lecture, even when it is attended to with maximum effort on the part of the auditor, is something that the mind must first absorb before it can begin to digest and assimilate what is thus taken in. If passively attended to and passively absorbed by the memory, the lecture has the same effect as indoctrination, even if the lecturer scrupulously intended to avoid that result. At its best, the lecture cannot be more than an occasion for learning, as challenge to the mind of the auditor, an invitation to inquiry. The lecture, in short, is no better than the book as a teacher—an oral rather than a written communication of knowledge.

If, however, the lecture is always accompanied by some discussion of whatever matters are didactically presented, if there is an active interchange between teacher and students through questioning, didactic teaching can, to some slight degree, become genuine teaching of knowledge understood instead of being an indoctrination of opinions to be committed to memory, retained, regurgitated on examinations, and then largely forgotten when the tests have been passed.

Analogous to the fully cooperative therapeutic technique of controlling the patient's regimen is the fully cooperative pedagogical technique of engaging the learner in discussion—teaching by asking instead of teaching by telling, asking questions not merely to elicit answers for the sake of grading them (as in a quiz session, which is not teaching at all), but asking questions that open up new avenues of inquiry.

When instruction is not accompanied by discovery, when instruction makes impressions on the memory with no act of understanding by the mind, then it is not genuine teaching, but mere indoctrination. Genuine teaching, in sharp distinction from indoctrination, always consists in activities on the part of teachers that cooperate with activities performed by the minds of students engaged in discovery.

The Greek word for mind, *nous*, identifies it with understanding. What we do not understand at all we retain solely through memory. Memory is a by-product of sense-perception; understanding, an act of the intellect. Statements that are verbally remembered and recalled should never be confused with facts understood.

Correlated with this distinction between mind and memory is the distinction between knowledge and opinion. To know something

as opposed to holding a mere opinion about it is to understand it in the light of relevant reasons and supporting evidence.

Students acquire knowledge by the activity of their own minds, with or without the aid of teachers. How do they come by the opinions they hold, especially those acquired in the course of schooling?

They have adopted them on the naked authority of teachers who acted as if they were productive, not cooperative, artists—teachers who indoctrinated them by didactic instruction that was not accompanied by any acts of thinking or discovery on their part.

I have used the phrase “naked authority” to signify the authority teachers arrogate to themselves when they expect students to accept what they tell them simply because they are teachers. The only authority to which genuine teachers, as opposed to indoctrinators, should appeal is the authority of the relevant reasons or the evidence supporting whatever is to be learned. In the absence of such authority, teachers cannot help students acquire knowledge that is understood. They can only indoctrinate them with opinions they may or may not retain for long in their memories. Opinions adopted on the naked authority of teachers have little durability. Opinions remembered, with that memory reinforced temporarily by “boning up for tests,” are opinions for the most part soon forgotten.

Much more durable are the habits of skill that are formed by the kind of teaching that is coaching, which is more cooperative than didactic teaching even when what is thus taught is illuminated by understanding through discussion. Habits are not memories. They can only be formed by coaching, never by lectures and the reading of textbooks.



Most students passing, at the end of one academic year, the standardized tests currently used, which are largely tests of memory, would probably not be able to pass them if they were given the same tests without warning at the beginning of the next academic year. But if the habitually possessed skills of students in reading and writing were measured by the level of their performance at the end of one academic year and then measured in the same way at a later time, little would be lost.

The understanding of ideas and knowledge understood, once acquired, has maximum durability. What is understood cannot be forgotten because it is a habit of the intellect, not something remembered. Anyone who comes to understand that a truth is self-evident only if it is undeniable because its opposite is unthinkable will understand it forever. To test or measure the understanding of students, the only effective instrument is an oral examination, a probing of the mind by persistent questioning that penetrates its depths as far as possible.

The misunderstanding of teaching and learning that prevails today has resulted in the deplorable fact, amply attested by Professor John Goodlad in *A Place Called School*, that 85 percent of all classroom time is consumed by unrelieved didactic teaching that is not genuine teaching at all, but sheer indoctrination. It results in the short-lived, mainly verbal, memory of mere opinions adopted on the naked authority assumed by indoctrinating teachers.


The conception of the teacher as one who has knowledge or information that he or she transmits to students as passive recipients violates the nature of teaching as a cooperative art. It assumes that genuine learning can occur simply by instruction, without acts of thinking and understanding that involve discovery by the minds of students.

The way in which we test or examine students and the way in which we grade them determines what teachers teach and how they teach, and what students learn and how they learn. Our present methods call for indoctrination rather than genuine teaching, and for memorizing rather than genuine learning.

Unless we radically change our present methods of testing and grading students, we cannot expect our teachers to become cooperative artists instead of mere indoctrinators, and we cannot expect our students to become genuine learners instead of mere memorizers.

All our written tests should be open-book examinations so that students prepare for them not by boning up on what they have not adequately remembered, but by trying to deepen their understanding of what they were taught, or sharpening their thinking about it. If habitual skills are to be evaluated, they should be tested by performances judged adequate or inadequate. And to measure levels of understanding, the only effective instrument is an oral examination.

Four things are needed in the training of teachers to make them cooperative artists:

1. They themselves should possess whatever knowledge students are expected to acquire through their didactic efforts, but this by itself is never enough. They must also have an understanding of everything they know in order for them to be able to supplement their didactic performance by questioning, by answering questions, by leading discussions that will help their students acquire genuine knowledge, knowledge accompanied by understanding.
2. Teachers should have the intellectual skills they are expected to coach and they should know how to form the habits of those skills in the students they coach.
3. They should have an understanding of the ideas and issues that they wish to help students to comprehend through discussions in Socratically conducted seminars. For this purpose they should be trained in the art of conducting seminars by observing others conducting them, by participating themselves as students in seminars conducted by others, and by conducting seminars under the critical scrutiny of masters of this art.
4. Most important of all, they should be so prepared for the profession of teaching that they understand their own primary role as that of learners. A school should be a place where teachers learn, not just a place where students learn. A learner-teacher is one whose teaching involves genuine intellectual activity on the teacher's part as well as on the student's part, not just recitation by the teacher and memorization by the students. 

Excerpted from his book *Reforming Education: The Opening of the American Mind*.

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