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KNOWLEDGE AND FALLIBILISM:

Essays on Improving Education

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CHAPTER 3

Against Learning*

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EDUCATIONAL AUTHORITARIANISM

The title is catchy but somewhat inaccurate. I am not really against learning. I am against construing the educational process as learning. And I'm against the notion of the school as a learning center. But most of all, I'm against casting the teacher as a promoter of learning.

By "learning" I mean the acquisition of skills, ideas, and dispositions. Now, why am I against teachers promoting the acquisition of skills, ideas, and dispositions?

Because casting the teacher into this role focuses attention on the techniques of promoting learning and thus converts education into a technocratic enterprise. "How can I get students to learn?" is a technocratic question. It directs the teacher to search out the appropriate means for producing some predetermined end: a human being who has learned something. As technocrats, teachers assume that what students learn (or are supposed to learn) under

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their promotion is true, good, and desirable; indeed, they have to become dogmatic about such things—a “good” teacher is always able and ready to defend and justify the learning he or she promotes. What is even more distressing is that “good” teachers pass this dogmatism on to their students by insisting that they, too, defend what they have learned: “Always be able to explain why what you have learned is true, or good, or desirable.”

So, casting the teacher into the role of promoter of learning converts education into a technocratic enterprise, and this fosters authoritarian teachers. As I understand it, authoritarianism prevents the growth or advancement of knowledge; hence, I’m against it. This authoritarianism manifests itself in the ways educators have responded to the query: “How can I get students to learn?”

One of these responses, recently labeled “the problem of the match,”¹ consists of “matching” or “fitting” what is to be learned to the learner himself. For centuries educators have tried to work out the principles for matching. Comenius wrestled with it,² John Dewey saw it as the central problem of progressive education,³ and most present-day teachers see it as their main task.

This notion of matching is best described through the “building-block” metaphor of education. According to this metaphor, the teacher who seeks to promote learning must “build” upon what the student already knows, after first assuring that the student does have a “firm foundation” of learning. At this point, the teacher confronts the problem of the match, or fit: the teacher must discover, manufacture, or create “blocks” of learning—of correct size, density, and weight—to “fit” into the edifice of learning the child already has. These “blocks of learning” are the bits and pieces of the various matters the teacher is supposed to get across to, or into, the student.

The attempt to find the fit is only one of the proposed authoritarian “solutions” to the question of how to promote learning. A second, and related, authoritarian solution is the attempt to “motivate” the student. Motivation is related, for, even if the block of learning is the correct fit for the student’s edifice of learning, he must see that it fits, he must accept it, get it; he must want it: therefore, the teacher must motivate him to learn. We can

classify most theories of motivation as either “push” or “pull” theories. The pull theories use some kind of carrot (purpose, value, or need), and the push theories some kind of pitchfork (drive, motive, or stimulus) to get the student, one way or the other, to learn what he is supposed to learn.⁴

Many modern educational theorists from Rousseau through Dewey to A. S. Neill and the so-called romantic critics have turned against the traditional ways of matching and motivating. The traditional ways, they have insisted, are authoritarian because teachers predetermine what is to be taught and force students to learn it. In so predetermining what the students are supposed to learn, these critics continue, the teachers rarely find the fit; and since what they predetermine is usually dull, dreary, irrelevant, and useless, they often fail to motivate the students to learn. The result, these critics observe, is readily apparent: frustrated teachers become more authoritarian; students, more restive, apathetic, and resistant. And when, as has occurred since midcentury, more and more children come to the schools and stay there longer and longer, this authoritarianism becomes more pronounced, and the response from the students becomes more poignant and dramatic.

The solution to the question of how to promote learning put forth by many of these modern critics consists of having students learn only those things they are interested in. They urge teachers and schools to become child centered. They talk about teachers serving as “facilitators” of learning.⁵ In keeping with this prescription, we today witness teachers using the inquiry or discovery approach and schools providing open classrooms, or even open and free schools, methods, and arrangements that allow students to learn what is of interest to them.

Yet, even if the modern critics have their dreams fulfilled, even if they lick the problem of the fit and the problem of motivation by having the students learn what they find exciting, interesting, and useful, there is still a problem: a problem with what is learned. For much of what is learned is false, mistaken, inadequate, even harmful. This is so of our students and of us, too. Whether we learn in a teacher-centered curriculum or a child-centered one, whether we learn in school or out, under the guidance of a teacher or on our own, we cannot insure that what we learn is true, or even

correct, right, good, appropriate, or satisfactory. Human beings are not infallible, so what they learn cannot be perfect. We cannot devise ways of learning for ourselves or for our students that will guarantee the truth of our ideas, the adequacy of our skills, or the goodness of our dispositions. This fact suggests that the modern critics have not fully unveiled the authoritarianism inherent in the educational process today. So long as we construe education as learning, the school as a learning center, and teachers as promoters of learning, we are constructing an authoritarian enterprise. Child-centered education merely shifts the locus of final authority from the teacher to the student. What the student learns here is supposedly true, right, good, or appropriate because it comes out of his own experience. But this obviously won't do; it is just as authoritarian as saying that what the student learns is true because the teacher (or the textbook or the expert) says it is true.

The modern advocates of student-centered education claim that students learn more readily and effectively those things in which they are interested.⁶ But it is precisely for this reason that student-centered education is bad education. This kind of education develops a strong, often unrefutable, faith in what has been learned. "I know it's true; I experienced it!" What is learned becomes permanently a part of the learner, which is another way of saying that a person cannot improve his learning. He is committed to what he has learned; indeed, we can say he identifies himself with it. He is what he has learned. To criticize his ideas, the skills, the dispositions he has is to attack him. Thus, the learner will resist criticism, guard what he "knows" against attack, hold on to his learning at all costs. In short, his learning will not advance; it will stagnate.

Teachers who seek to promote or facilitate learning, whether they employ the traditional teacher-centered approach or the modern child-centered approach, convert education into an authoritarian enterprise. The more successful they are at promoting learning, the more they insure that what is learned will not advance or improve.

EDUCATION WITHOUT FINAL AUTHORITIES

If we are ever to eliminate authoritarianism from education, we cannot merely shift the locus of final authority from the teacher to the student; we must completely get rid of the notion of final authorities. And this suggests that we must construe education differently.

What would an education without final authorities be like? This construction of education would direct us away from technocratic questions about how to promote learning to focus on questions about the worth of what is learned. Once we try to ascertain the worth of what is learned without appeal to any final authority, we discover that we must abandon the notion of justification, facing up to the fact that without final authorities we cannot ever demonstrate that what we learn or what our students learn is true, good, or appropriate. How, then, can we ascertain the worth of our learning? We can do this by approaching it critically, trying to find out what is wrong with it. Thus, we can compare our ideas, skills, and dispositions—or those of our students—with other ideas, skills and dispositions, thereby revealing ways in which one, or the other, is inadequate or wrong. This critical, or ecological, approach leads to the refinement or modification of learning.

To construe education in this way is to construe the enterprise as human, not technical—an enterprise rooted in our human condition of fallibility. Education becomes a modest endeavor, an endeavor to create better ideas, skills, and dispositions—not an attempt to impose justified ones.

This conception of education as improvement construes the process itself as one of evolution or growth. Now, of course, many educators have construed education this way; but all such constructions have been Lamarckian rather than Darwinian. According to Lamarck's (discredited) theory, evolution takes place through the transmission of acquired characteristics to offspring. Because educators persisted in equating education with learning, they inevitably adopted a Lamarckian theory of human growth. Thus, most educators have construed the student, or his mind, as a *tabula rasa*—a blank slate, or an empty vessel, bereft of knowl-

edge. The student (or his mind or his knowledge) grows through the acquisition of knowledge that the teacher transmits directly, via instruction, or indirectly, via providing appropriate experiences.

Darwin's theory of evolution is quite different. According to him, evolution took place through natural selection: organisms produce offspring that in some small ways differ from themselves; the environment (nature) selects and rejects as unfit those that develop in inadequate ways. Thus, the unfit do not survive: they have no offspring.

Some philosophers of science, notably Sir Karl Popper, have adopted the Darwinian theory of evolution in explaining how science advances and grows.⁷ Science, they say, grows through the continual criticism of existing and proposed scientific theories. Criticism identifies errors and inadequacies, leading to the refinement of the theories in light of the unrefuted criticism. To paraphrase the theory of natural selection, we can say that science grows through the process of submitting its theories to an environment of criticism which selects and rejects as unfit those that are falsified. I am suggesting that we apply this Darwinian construction of the growth of science to the educational process itself and get rid of the Lamarckian theory of growth that dominates contemporary educational thought.

The Darwinian conception of education rejects the notion of the student as a *tabula rasa*. That is, just as biological evolution presupposes that each newborn generation contains mutations that will be selected and rejected, so evolutionary education presupposes that students possess learning. According to this conception, learning is not synonymous with education; it is the starting point. The process of education is the refinement, the improvement of what one has already learned. Education presupposes learning.⁸

I think it is important to note that the Lamarckian theory of growth does simulate what really happens according to the Darwinian theory. That is, as all teachers know, students do come to school possessed of learning, most of which is wrong, inadequate, inchoate, and fallacious. Teachers then traditionally proceed to present ideas, demonstrate skills, and praise dispositions different

from, and purportedly superior to, those that the students already have. As a result, the students, with varying degrees of success, attempt to refine their own ideas, skills, and dispositions because the models and exemplars presented by the teacher have revealed the inadequacy of their own ideas, skills, or dispositions. So it looks as if the student is acquiring knowledge transmitted by the teacher—in accordance with the Lamarckian theory of growth—while in point of fact the student is refining or modifying his knowledge in light of the criticism tacitly professed.

Thus, the Lamarckian theory of growth approximates the Darwinian one. But what is wrong with this Lamarckian construction of education is that it stymies further growth. According to it, successful education consists of the acquisition of the approved, true, correct knowledge: knowledge justified by some final authority. This fosters a dogmatic or authoritarian attitude toward the knowledge acquired. For if the learner believes that the knowledge he possesses is "true" (i.e., justified), then he will be inclined to secure it against change, against modification, against refinement. The knowledge will not grow.

The Darwinian construction of evolutionary education makes explicit the spring of growth: knowledge advances through selection and rejection of errors and inadequacies in the knowledge we already possess. Through discovering how and in what ways our ideas, skills, and dispositions are false, inadequate and bad, we can set about refining, changing, or replacing them. The new ones we create are better than the old insofar as they lack the recognized defects of the old. And since we can never make them perfect, we can continually improve them, so long as we approach them critically. This means that education need never end. Thus, instead of authoritarianism and dogmatism, the Darwinian construction of evolutionary education fosters an awareness of human fallibility. If successful, rather than protecting knowledge and defending it against change, a Darwinian approach to education leads students to the conscious effort to improve knowledge.

THE NEW ROLE OF THE TEACHER AND THE SCHOOL

If we adopt the Darwinian construction of evolutionary education, then what about the function of the school? What about the role of the teacher? The school will no longer be construed as a center of learning. It is, after all, somewhat presumptuous to cast the school as a center for learning, since learning occurs in many places, not just in school; it occurs in many ways, not just under the guidance of a teacher. Learning is ubiquitous and endless; it never ceases. Learning happens; it happens all the time. But we do need a place where we can test the worth of what we have learned, a place where we can criticize so that we can improve. So, if we adopt the Darwinian conception of evolutionary education, we can construct the school as a center for criticism—a critical agency.

And the teacher? No longer the promoter of learning, the teacher will now simply try to help students improve knowledge by helping them to probe, to test, to experiment with—to criticize—the knowledge they already have. Perhaps the best way to convey this construction of the role of the teacher and the function of the school is to cast it in a new metaphor.

I suggest we adopt the closet-cleaning metaphor. Every student has a closet full of ideas, skills, and dispositions that he has accumulated in the course of his life. But much of what he has accumulated is false, mistaken, erroneous, mythical, inadequate, and may even be harmful. The educational process is one of closet cleaning. The teacher helps the student clean his own closet by helping him to criticize and test the worth of the ideas, skills, and dispositions he has accumulated. But it is not the teacher's job to replenish the closet. The teacher does not have a pile of official wisdom, or guaranteed skills, or approved dispositions to give, sell, install, or foist off on the student. The teacher is not a closet stuffer, not a promoter of learning. The teacher's task is the liquidation of ignorance, the elimination of false, mistaken, and inadequate ideas, skills, and dispositions.⁹

The closet-cleaner teacher, unlike the building-block teacher, has no concern with the matter of the "fit," nor with motivation.

These problems emerged from the theory that the teacher's role was the promotion of knowledge; once we abandon it, they disappear. The closet-cleaner teacher is not trying to impose anything on the student. She is trying to help him to improve what he has already learned.

So far, I have argued that to construe education as learning, schools as places where learning takes place, and teachers as promoters of learning is to construct education as an authoritarian enterprise, with schools and teachers becoming manipulators of the young. Even the modern child-centered educational theorists, insofar as they equate education with learning, are constructing an authoritarian enterprise. I have suggested that we can avoid authoritarianism by construing education as evolution or improvement, schools as critical agencies, and teachers as critics.

I will now sketch how a teacher could function as a critic. What follows is not a scheme for a total, nor even a radical transformation of our existing educational systems. The changes I propose in the role of the teacher can occur within the present arrangements in most schools. I see no necessity to start altering the structure, the organization, or the curriculum, although introducing this change in the role of the teacher will result in changes in all of them. My intention here is to initiate educational reform by urging educators to begin with what can be changed immediately: the way the teacher construes his or her role in the educative process.

IMPROVING SKILLS

Much of what we now teach in schools consists of skills: reading, writing, arithmetic, as well as typing, spelling, swimming, dancing, and music. Furthermore, some teach the social sciences, like history, or the physical sciences, like physics, as skills: in these classrooms, students learn to do history or physics.

The basic assumption of the closet-cleaner teacher is that the student already possesses skills. He possesses them in a rudimentary, primitive, or gross way that he must now begin to refine. Thus, the young child in the first grade has mathematical skills: he can count, or separate one entity or unit from another; he can draw lines, curved ones and ones less curved. He has reading skills: he can decode or read signals or signs or symbols; he can decode or

“read” another’s face to tell the other’s mood; he can decode or read traffic signals, he can read picture books. He has writing skills: he can make marks and zigs and zags with a pencil or crayon. He has musical skills: he can sing, hum; he can bang a drum, make sounds on a piano. In short, all children, even the youngest, possess skills—motor skills, manual skills, and cognitive skills—in some gross form.

In order to improve, the student must refine his own skills; he must alter, change, or modify what he can already do. To help him do this, the closet-cleaner teacher first elicits, or educes, the skills he now has. The next step is to help him recognize the inadequacy of that skill. Finally, the teacher encourages him to modify the skill and try again.

There are at least two ways of eliciting a skill from a student. One is by confronting him with a problem—a math problem, say, or a problem in physics, or even a passage to read, or a paragraph to type. A second way to do it is to ask the student to imitate a model—a drawing or a painting, for example, or the movements of a swimmer, or some arithmetical calculation, or the spelling of a word.

Once the student has exhibited his skill, the teacher’s task is to criticize it, to help him discover the inadequacies of the errors. This sounds harsh and debilitating—even fearsome. Yet it need not be any of these things at all. Everything depends upon the mood and atmosphere established by the teacher and the mode of interacting with the student. The teacher must demonstrate that he or she is there to help him, not to grade him; there to help him improve his skills, not to embarrass him. The teacher’s credentials or warrant for helping the student improve a skill is not the ability to perform that skill. No, it is the ability to uncover and demonstrate the inadequacies in student’s performances. The mathematics teacher need not be a master mathematician, nor the swimming teacher a champion swimmer, nor the drawing teacher a professional artist. For each, the warrant to teach is that the teacher is able to discover and point out inadequacies in the skills of those being taught. (When a teacher is no longer able to do this, then the student is ready for a new teacher.)

The closet-cleaner teacher does not approach the student as an authority but as a helpful critic. One modern educational theorist who partly shared this conception of the role of the teacher was Maria Montessori. With her so-called didactic materials, she provided a means both for eliciting the skills the child already possesses and for simultaneously criticizing them—helping him to discover the inadequacies of a specific skill.¹⁰ The Montessori didactic materials are so constructed that they reveal to the child his mistakes. Thus, for example, if he places one or more dowels in the wrong holes, the remaining dowels will not fit in the remaining holes; the materials themselves make manifest his errors. This control of error built into the materials spares the child the possible embarrassment and fear of being told by the teacher that he has made a mistake. Moreover, these didactic materials are graduated in difficulty so that the kinds of discrimination called for are ever more precise. By providing a wide variety of these didactic materials for the children to choose from, the Montessori classroom permits them to improve the skills they already possess. All of Montessori’s work was with young children. But it is obvious that schools could develop arrangements for teaching many different kinds of skills—typing, swimming, painting—that would incorporate the principles inherent in her didactic materials.

Maria Montessori presented her didactic materials as means to promote the learning skills—learning how to read, calculate, write, and so on. She was not concerned, as is the closet-cleaner teacher, with the continual improvement of all skills. She appeared never to ask how we can continually improve, although obviously we can all continue to improve our linguistic, mathematic, and writing skills—improving them indefinitely. Although she herself paid no heed to this question, Montessori actually incorporated the means for continual improvement in her so-called didactic materials: the discovery of error and inadequacy. Now, the teacher who takes on the function of continually improving skills must move beyond Maria Montessori’s concern—a concern shared by most teachers—merely to promote the learning of skills. To do this, the teacher must help the student realize right from the beginning that all skills can be continually improved.

One way to do this is through the study of the historical improvement or evolution of the various skills human beings have acquired—a development that came about as human beings continually discovered the inadequacies of their existing skills and continually refined them in light of these discoveries. Since the stress in this historical study will be on man's fallibility—his inability to develop perfect skills—the focus will be on problem raising, not problem solving. That is, the teacher will direct students to the ways and conditions under which earlier skills broke down. Thus, students will see that throughout history people have continually developed skills that have in one way or another proved to be inadequate. But they will also see that once he discovered an inadequacy, man has refined his skills, thus improving them.

The history of the skill in question helps the student to see that there is no final proper way to perform the skill. Such history helps him to see that men have tried a lot of inadequate ways. This historical survey need not take up too much time; only enough so that students recognize that man can continually improve his skills—linguistic, literary, mathematical, or whatever; second, the student will also come to recognize that the way to improvement is through the continual search for inadequacies and the continual testing of those skills. This recognition of the possibility of continual improvement is merely propaedeutic to the central task of the teacher of skills: the continual improvement of the skills each student already possesses.

In summary, the closet-cleaner teacher who wants to improve skills goes through three phases. First, the teacher elicits the skills the student already possesses. One can do this in at least two ways: by asking the student to imitate a specific model, or by presenting him with a problem to solve which will call upon the skill in question. The second task is to criticize the skill, helping the student to recognize the inadequacies of it. (Sometimes, as with Montessori's didactic materials, the teacher can combine the first, or eliciting phase, with the second, or critical phase.) In the third phase, the teacher persuades the student to try again. Here the mode or manner of the teacher is all-important. One must not make the student fearful. The approach to him should not be that of a judge nor of a grader, but rather that of a helper.

The upshot of this kind of education will be that the student becomes expert in the various skills, but more important, he becomes a student of those skills, concerned with their continual improvement, and possessed of the way to that improvement: continual criticism.

THE IMPROVEMENT OF IDEAS

Many teachers, especially those in secondary schools, have the task of teaching the young about man and his physical and social environment—its past and present. They do this through a variety of subjects: history, the social and behavioral sciences, and the physical sciences. The closet-cleaner teacher who takes the educational task to be the improvement of ideas assumes that students already do have ideas about man and the physical and social world he inhabits. Students in the secondary schools have closets full of ideas, theories, and notions; perhaps they are fuzzy ideas, undeveloped theories, and vague notions—but they have them nonetheless. The closet-cleaner teacher also makes a second assumption about students: that they are able to argue and able to understand arguments. As Piaget has demonstrated, this inferential thinking does not develop until adolescence.¹¹ Therefore, although elementary school teachers may want to teach the social and physical sciences, they will not be able to function as closet cleaners. Insofar as students are incapable of inferential thinking, instruction in these subjects in the elementary grades does not improve the students' ideas; it merely imposes ideas on them. (This I take to be a good argument for not teaching the physical and social sciences in the elementary school.)

After making the assumptions that the student does have ideas, what does the closet-cleaner teacher do? Maybe it is best first to note what the closet-cleaner teacher does not do: the closet-cleaner teacher doesn't impose the subject matter on the student. Rather, the teacher presents the subject matter for the student's criticism, never asking him to accept the ideas presented, but to criticize them. The closet-cleaner teacher invites the student to engage in a critical dialogue.

Imagine the school as a large department store—a free store, if you will—each department stocked with the traditional wisdom of

each discipline or subject matter. To it comes the student, bringing with him (he cannot do otherwise) his own closet full of his accumulated learnings. There the teacher confronts him with the ideas, notions, theories contained in the traditional wisdom of the subject matters. This encounter permits the student to do three things: (1) to compare his own ideas, theories, and notions with those presented; (2) to assess the worth of his ideas, and (3) to refine them in light of the assessment.

Here the teacher's initial task is to see to it that a critical encounter takes place. One of the most common obstacles to a critical encounter crops up when the teacher presents the traditional wisdom of the subject matter as a finished product—as final knowledge. When a teacher presents history or physics or biology as a logically ordered system, he or she conveys to the student that there is a body of true knowledge called history, another called physics, another called biology. Confronted with this “true knowledge,” the students can do naught but accept it (or ignore it): they will not encounter it critically.

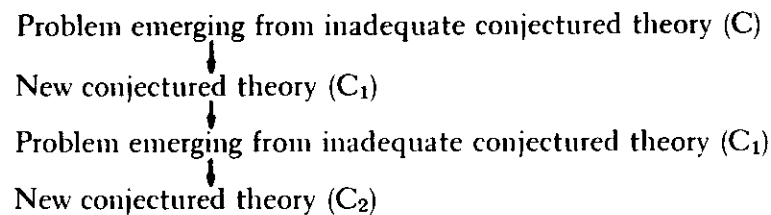
Instead of presenting fully worked out logical systems, the closet-cleaner teachers will present their various subject matters as conjectures—conjectures made by fallible men in answer to specific problems. Students, right from the start, must recognize that scientists create science, that psychologists create psychology, physicists create physics, and historians create history. Moreover, right from the start, students recognize that they are students of problems, not of answers. And, probably most important, right from the start students recognize that the problems they are studying are problems about knowledge; that is, problems about the previous conjectures men have made.¹²

All this might be made clearer by noting the assumptions that the closet-cleaner teacher makes about the various subject matters. The teacher assumes that man creates his knowledge. But each man does not start off anew. He inherits the knowledge men have created in the past. This knowledge, all of which is conjectural, cannot be perfect—it was created by fallible men. But it can be improved by discovering its inadequacies and eliminating the errors it contains. However, this improved knowledge cannot be perfect either; it will contain new problems or modified versions of

the old problems. These new problems can be revealed through the critical scrutiny of the “improved knowledge.” In brief, then, students of the closet-cleaner teacher recognize that all the various subject matters have histories, and each history is the story of the continual discovery of the various inadequacies contained in man's successive conjectures about himself and the universe in which he lives. In order to help students recognize this construction of the subject matters, the closet-cleaner teacher will begin with a historical approach. Let me sketch how the science teacher might use this approach.

Taking a specific conjecture (C_1) made in the past by some scientist about some phenomenon in the universe, the teacher shows how it was an attempt to solve a problem contained in a previous “scientific” conjecture (C). The previous conjecture (C) had proved to be inadequate; it led to disappointed expectations. The new conjecture (C_1) represents an improvement insofar as it eliminates those disappointed expectations; or, we might say it is a better theory because it does not contain the errors revealed in the previous conjecture (C).

By approaching the work of scientists historically, the teacher shows how science advances: through scientists making conjectures and then discovering the errors in those conjectures. Thus, the teacher will show how, in time, the new conjecture (C_1) also proved to be inadequate. It, too, led to (other) disappointed expectations, resulting in a revised, or new, conjecture (C_2) to overcome the problems contained in, or caused by, the previous conjecture (C_1). The teacher continues this historical pattern up to the present:



In tracing the history of scientific theories about a specific phenomenon, the teacher ultimately confronts the students with the

present-day conjectured theory or theories that have emerged as attempts to solve or overcome the problems uncovered in previous conjectures. At this point, the teacher invites the students to engage these latest conjectures critically. To facilitate a critical encounter, the teacher can present these present-day theories in an invitational mode: "These latest theories cannot be perfect; they, too, were created by fallible men. Let's see what's wrong with them."

This invitation to a critical engagement constitutes an attempt to initiate the students into the work of scientists; specifically, it is an invitation to participate in the critical tradition of a particular research program or field of inquiry. The student now becomes a participant in the advancement of knowledge.

At this juncture, the student begins to "act like a scientist." For the closet-cleaner teacher, this means that the student will attempt to criticize the present-day theories or ideas, to find out what is wrong with them, or to ascertain their limitations. The teacher will invite the students to present their own arguments against the conjectures of the scientists; will ask them to devise and carry out experiments to test the conjectures; and will suggest they do laboratory, library, or field research to probe them.

After the student presents his criticisms of the latest conjectures of the scientists, the teacher develops the critical encounter by engaging in critical dialogue with the student—criticizing his criticisms—not in order to grade or evaluate him but in order to help him recognize the inadequacies of his criticisms, to help him become a better critic. When criticising the student's criticisms, the teacher zeroes in on the educator's target: the closet full of ideas the student has about the world. The student's criticisms will emanate from his own ideas. So, by criticizing the student's criticisms, the teacher is actually trying to help him discover some of the inadequacies of his own ideas. The student, of course, must respond to these criticisms, criticizing them. This creates a critical dialogue.

The dialogue will uncover some of the limitations and weaknesses of some of the ideas in the student's closet. And the dialogue may also uncover some of the weaknesses and limitations in the conjectures of the scientists. The discovery of inadequacy leads to the reconstruction or refining of ideas: the advancement

or improvement of knowledge. The critical dialogue initiates students as participants in the activity of advancing knowledge via criticism.

Here we must repeat that the concern of the teacher is with the improvement of the student's ideas, with finding out and helping the student to discover ways in which his ideas are inadequate. The student, on the other hand, is concerned with the improvement of the conjectures of the scientists, discovering ways in which the scientists' conjectures are inadequate. He is a postulant in the advancement of scientific knowledge. The teacher can help the student improve his own ideas only insofar as the student seriously and critically engages the conjectures of the scientists, for only in this way does he reveal and make public his own closet full of ideas—ideas then subject to criticisms by the teacher. This is not to say that the student will be unconcerned with the improvement of his own ideas, but as John Stuart Mill said of the pursuit of happiness, this is "only to be attained by not making it the direct end." Even though the student does want to improve his ideas, he cannot be sure which ones are inadequate, the ones on which he should focus. By focusing on the conjectures of the scientists, he directs himself to a historically significant area of inquiry, makes public his own ideas, and tests their adequacy.

The teacher and student can pursue the critical dialogue through continuing discussion and experiments or research projects, field trips, or whatever ways the participants decide. The refinement and improvement of the student's ideas in light of the inadequacies discovered through the critical dialogue is a task the student must perform himself. The improved ideas, too, will be open to criticism when, in a later critical dialogue, the student makes them public.

The closet-cleaner teacher of history and the social sciences will follow the same pattern as the teacher of science. But there are differences. History and the social sciences are not linear like the natural sciences. Modern historians and modern social and political theorists have not superseded the works of the ancients, as has occurred in the natural sciences. Therefore, the closet-cleaner teacher of history and the social sciences in the secondary school can plunder the past rather than present a linear progression of conjectures about man and society from the past to the present.

That is, in teaching these subjects, the teacher will confront the students with different interpretations of the past made by different historians, or different theories conjectured by different social theorists about a specific phenomenon. Then the teacher will invite the students to engage these conflicting interpretations and theories critically: "These two scholars say conflicting things about man, or society. They cannot both be correct. What criticisms can you make of their conjectures?"

Once again the teacher's concern is with the student's closet full of ideas—elicited by the criticisms he makes of the theories presented to him. By engaging his criticisms with criticisms, the teacher develops a critical dialogue that helps the student to discover the weaknesses, inadequacies, or limitations in his own ideas. Once again, the student is initiated into a research program or a field of inquiry where he becomes a postulant participant in the advancement of knowledge in that field. And in the very process of such initiation, the teacher helps him advance or improve his own closet full of ideas.

At this point, it may be well to confront a practical question: Can all students engage in critical dialogue? Isn't this method suitable for bright students only? Moreover, can a class of twenty (or thirty or forty!) students engage in critical dialogue?

These questions emerge from the very construction of education that I am arguing against in this paper. That is, to construe education as learning and the student's mind as a tabula rasa is to construct an approach to education that favors those who most readily learn, and those who have a large fund of information: so-called bright students. Bright students are easier to teach, easier to educate, and any teaching method or scheme to increase the speed of learning or the amount of learning that takes place always works best with the bright students.

But I have argued that we need not construe education as learning, as acquisition, nor students' minds as buckets to be filled. Nor need the teacher construe the task of education teleologically: getting some predetermined learning across to or into the student. We can construe education as the evolution or growth of knowledge or learning that the student already possesses. This construes the teacher's task historically: the refinement of the student's in-

adequate knowledge. To construe education this way is to overcome the prejudice in favor of the bright student, for *all* students—bright ones and ones not so bright—do possess knowledge. All can refine their present knowledge. The teacher must take all students' ideas, skills, and dispositions seriously, helping them to make them public without fear or anxiety and then caring enough to help them perceive their inadequacies.

Moreover, a teacher who adopts this critical approach in teaching can still utilize all the many procedures and strategies presently used for coping with classes or twenty (or thirty or forty!) students. The teacher will, however, approach these strategies differently, using films, filmstrips, teaching machines, and all the instructional technology to present information for students to encounter critically. He or she will not use these techniques to inculcate information the student must accept. The teacher will probably have students take more tests and write more papers, not to grade or judge them, but to elicit their present knowledge; the comments and criticisms of their tests and papers will be educative, not evaluative. The teacher will probably have more classroom discussions. These will take the form of dialogues, not debates or covert lectures, where the students are led by the nose to some predetermined end. The teacher can have more individual and group work which facilitates the education and criticism of students' knowledge.

The critical approach to teaching is not a method of instruction—it is simply an approach. It mandates no specific ways of teaching. It merely suggests that the teacher adopt the role of helpful critic to aid the student in the advancement of his knowledge.

THE IMPROVEMENT OF DISPOSITIONS

At all levels of education—elementary, secondary, and higher—teachers try to teach dispositions, especially moral and aesthetic dispositions. Teachers try to dispose the young toward what is good and what is beautiful.

The closet-cleaner teacher approaches this negatively. As with skills and ideas, so with dispositions: the teacher wants to improve those that exist. And so with dispositions, as with skills and ideas,

the closet-cleaner teacher's does not presume to know what is perfect, what is correct. For as we saw with skills and ideas, the closet-cleaner teacher's expertise consists of knowing what is wrong, what is inadequate; hence the pedagogical task is to get students to focus on what is wrong or inadequate and, if possible, eliminate or diminish it. The closet-cleaner teacher employs this same negative approach toward the improvement of dispositions.

The teacher starts by assuming that students do have dispositions: moral dispositions to behave one way or another toward others; aesthetic dispositions to be moved by some phenomena and not by others. Second, the teacher assumes that the students' dispositions are not perfect. They, like all of us, are morally and aesthetically insensitive. We are all unaware of what is morally wrong with some of the ways we behave toward others, unaware of what is aesthetically inadequate with some of the phenomena that move us. The closet-cleaner teacher assumes, third, that the pedagogical task is to help students improve their dispositions, that is, to help them become less morally and aesthetically insensitive. And the final assumption is that the path to improvement is the critical approach, helping students become more aware of what is morally wrong with some of the ways they behave toward others, and more aware of what is aesthetically inadequate with some of the phenomena that move them.

The main task of the closet-cleaner teacher, then, is the sowing of dissatisfaction. Through criticism, the students become dissatisfied with their dispositions and look for different and better ways of behaving toward others and for new and better sources of aesthetic satisfaction.

The educative process here is the same as with the improvement of skills and ideas: the teacher elicits the dispositions the students have, helps them discover how and in what ways they are inadequate, and finally encourages them to refine, alter, or modify the dispositions.

Most of us in our daily behavior, in how we treat others, and in what we praise and condemn as well as what we ignore, do reveal our moral and aesthetic dispositions. Our environment elicits them spontaneously. Yet our daily activities rarely provide us the opportunity to examine critically our dispositions. We tend to

identify ourselves with our dispositions: we are what we do; we are what we value. But if we are to improve our moral and our aesthetic dispositions, if we are to become disposed to act differently and to be moved by different things, then we must separate ourselves from our dispositions. Dispositions must be made public so that we can examine them objectively.

To elicit moral dispositions, to make them public, the teacher can use the humanities, including history. Traditionally, educators construed the study of the humanities as the way to civilize the young, the way to make them human. Through the study of the humanities, teachers traditionally sought to initiate the young into a way of life, a culture—a culture that united them to other human beings, introducing them to something shared by those now living, those long dead, and those yet unborn. In the humanities, the young found those moral dispositions worthy of acquisition, or . . . imitation, at least.

But, if we assume that we can always improve our moral dispositions, the teacher will not look to the humanities as the source of moral authority, the repository of ready-made exemplars, suitable for imitation in our daily lives. Instead, the teacher will look to the humanities to supply a counterenvironment to the present moral environment of the students. By presenting students with stories, tales, and poems, or having them read legends, novels, and histories, the teacher helps them see how people behaved at different times and places and under different conditions. Following this presentation or reading, the teacher will invite the students to criticize the actions of the people involved. The students will criticize from their own points of view, so their criticisms will reveal their own dispositions. These student dispositions become the teacher's target: the teacher aims at them, trying to get the students to probe and criticize, to find out what is wrong with their own dispositions.

In this process, the teacher must pay heed to the works of literature used to elicit the criticisms of the students. The teacher must use serious works, avoiding the shallow, simplistic, moralistic tracts that pass for children's literature, lest the students suspect—rightfully so—that the teacher is trying to indoctrinate them.

To allay all suspicions of indoctrination, the teacher can share

four assumptions with the students: that all people have moral dispositions; that none has perfect a moral dispositions; that we can improve our moral disposition; that we can do this via the critical approach.

Sharing these assumptions with the students will help them take part in the dialogue and help them to understand what is going on. These assumptions make manifest the notion that human beings are fallible, so that even when we try to do good, evil is inherent in all our dispositions. Sharing these assumptions will also help students to understand how attempts to justify our behavior, rather than criticize it, prevent moral improvement. For, the teacher can point out, we can always come up with some argument to justify our behavior. But attempts to justify merely reinforce existing dispositions, whereas the whole purpose of the dialogue is to improve those dispositions by finding out what is wrong with them and what is wrong with the criticisms of them.

In a dialogue about moral dispositions, the teacher assumes that the students do have moral values or principles, notions of what is right and wrong. The dialogue focuses on the inconsistencies between the student's disposition and his own principles. The thrust of the dialogue is critical, not justificatory. The participants appraise the dispositions by the student's own criteria for what is wrong, bad, or evil. (Older students in senior high school and college can apply the critical approach to the moral codes themselves, in which case the participants will engage in moral philosophy. Here, too, the approach will be critical, not justificatory. The participants will try to discover what is wrong with the code under consideration: the philosophical quest will be a search for criteria of evil, not criteria of good.)

The critical dialogue about moral dispositions makes all who participate more morally sensitive by making them aware of what is morally wrong with some specific disposition. The elimination of those dispositions and the discovery of other, better ones is up to those who possess them. For in adopting the critical, negative approach to the improvement of dispositions, the teacher forswears telling students what they should do, or even helping them decide what they should do. The pedagogical job is solely that of

critic: helping students see what is wrong with specific dispositions.

In the attempts to improve aesthetic dispositions, the closet-cleaner teacher can use works from the arts and the humanities to elicit students' present aesthetic dispositions. Presenting them with a work of art, the teacher will invite them to explain what is wrong with it. These criticisms reveal the students' own dispositions—what moves them. These become the teacher's target, and the teacher tries to hit this target by helping them see the aesthetic inadequacies of the phenomena that move them. I have already described this educative process, and here I will make only two comments about eliciting student dispositions and criticizing them.

Unlike the readiness they evince when invited to make moral criticisms, students often hesitate to make aesthetic criticisms. Many are more likely to accept the notion that there are final authorities in the realm of aesthetics. One way the teacher can disabuse them of this notion is to point out some of the traditions in the different arts, traditions that reveal how successive artworks build upon predecessors by overcoming what artists regard as aesthetic inadequacies. History once again reveals man's perennial quest for improvement, making clear that no artist in any age or any place has even attained aesthetic perfection. Nor has any captured the criteria for it; there are no final authorities.

In the attempt to criticize the students' present dispositions, the teacher might make comparisons with samples of popular or youth culture, music, films, stories, or whatever is pertinent. The teacher must take care to prevent such comparisons from becoming generational confrontations over differences in taste. One can avoid this by making clear that the educational concern is with the improvement of our aesthetic dispositions, something that can take place throughout one's entire life and something that leads to a richer life. The teacher might even adopt the dictum of T. S. Eliot: "Fine art is the refinement, not the antithesis, of popular art." Criticism of what moves the students is not a put-down of popular or youth culture, but an attempt to broaden and deepen their aesthetic dispositions.

The comparisons should lead to critical dialogue, directed at what is aesthetically inadequate in the works themselves and what is inadequate in the criticisms themselves. Such dialogue helps to develop aesthetic sensitivity. Through it, participants often come to re-perceive the works under scrutiny, seeing aesthetic qualities where they had perceived none before.

IMPROVING EDUCATION

In this essay I have argued against teachers construing themselves as promoters of learning. My argument is that such a construction converts education into an authoritarian enterprise and thereby inhibits the improvement or advancement of knowledge.

In place of the promotion of learning, I have suggested that educators consciously take on the task of improving knowledge. To do this, they would begin with the assumption that students already possess learning in some gross, unarticulated fashion: students have skills, ideas, and dispositions. The teacher's task is to help improve them. One does this by first eliciting some part of this learning and then helping the student to criticize it. The actual refinement and modification of his learning in light of unrefuted criticism is up to the student himself. This process is a continual one, so that the teacher will then elicit and help criticize the newly refined knowledge.

I have suggested various ways the teacher might do this. Undoubtedly, there are other ways, but the important point is to have the teacher construe the pedagogical role as that of a closet cleaner, an improver of learning.

A reconstruction of the role of the teacher into that of a closet cleaner will completely change our conceptions of the beginnings and end of the educational process. Traditionally, we have begun the educational process with an uninformed or ignorant student on the one hand, and a body of real or true knowledge, or "learning," on the other. The process consists of the student acquiring that knowledge, or "learning." The process ends with an informed student, one who possesses true knowledge, or real "learning." Once we reconstruct the role of the teacher as a closet cleaner, we

begin the educational process with an informed student on the one hand, and a tradition of ideas, skills, and dispositions on the other. The process consists of the critical engagement of the student with that tradition. This leads to a refinement or modification of the student's learning in light of unrefuted criticism. There is no end to the process; the improvement of knowledge need never stop. Education can continue throughout one's life. Formal education merely initiates the young into the process through which we improve our knowledge or learning—the process of criticism.

I do believe that teachers must stop construing themselves as promoters of learning simply because such a construction actually generates most of the educational problems under discussion today.

Thus, perhaps as much as half of the educational problems recognized today spring from the failure of teachers to do what they are supposed to do: they fail to promote learning in all students. We receive many different explanations of why (some) students fail to learn. The most *hopeless* explanations refer to cultural and social changes over which we have no control and which seem to be irreversible: the decline of religion, the disintegration of the family, the influence of mass media, and unsettling demographic changes. The most *controversial* explanations locate the problem in the student: his heredity or his environment—some children cannot learn because they have the wrong genes or live in the wrong kind of neighborhood. The most *radical* explanations find the root causes in the system—the educational system, or sometimes the socioeconomic system, of Western civilization: the system prevents learning because it alienates and victimizes students. The *most frequently heard* explanation for the failure is poor teaching: teachers fail because they possess inadequate, inappropriate, or no skills; they have poor attitudes toward, or expectations of, their students; or they might fail simply because of their class background or their color.

Each of these explanations has some credibility, and all have led to various policies and programs to improve education. Those like Arthur Jensen who find the failure of learning due to heredity, advocate different kinds of education for different racial groups.¹³

Those like James Coleman, who trace the failure to the environment, endorse heterogeneous classrooms and schools; many of his camp support busing as a means of creating mixed schools.¹⁴ Those like Jonathan Kozol, who locate the failure to learn in the very educational system itself, propose new, different, alternative, or free schools, schools that will promote learning.¹⁵ Those like Colin Greer, who root the causes of failure in the economic and social structure of our society, demand that the schools become agents of social reconstruction, instruments to change and reconstruct the society.¹⁶ Finally, those many critics who lay the blame on the teachers insist that the public should hold the teachers accountable for the learning, or lack of it, that students acquire. This has revived an interest in so-called behavioral objectives, determinate and measurable objectives by which the public can grade teachers.¹⁷

Each one of these proposals for improvement, like the analysis on which each is based, has some credibility, but only because those who accept each one assume that the teacher's task is to promote learning. I maintain that this is a misguided assumption. This is evident when we look at those cases where teachers do successfully promote learning. Here we encounter the remaining problems—the other half—identified by the critics of today's educational scene.

First of all, when teachers do successfully promote learning for some students while failing to do so for others, they divide the school-age population, and ultimately the society itself, into winners and losers, oppressors and oppressed. Thus, attempts to promote learning leads to deep divisions within the society. Of course such divisions may always exist, but the fact that the school creates them lends them a legitimacy, a permanence that feeds the self-righteousness of the winners and the despair of the losers.¹⁸ And there are other unwanted and unanticipated social consequences brought about when teachers successfully promote learning. For example, Paul Goodman claimed that efforts to promote learning result in the processing of students—processing them from people into personnel, ready and willing to man the centralized, bureaucratized, dehumanized institutions of our civilization.¹⁹ This theme is echoed by Ivan Illich and Everett Reimer,

who claim that when schools successfully promote learning they convert the young into mindless believers in, and supporters of, a manipulative society.²⁰ Other critics have pointed out the dire consequences the promotion of learning has on the quality of education itself. Anxious to be successful "learners," students—aided and abetted by teachers anxious to be successful "promoters"—pursue the form of learning, disregarding its substance. That is, they amass grades and averages, points and credits, degrees and diplomas—all marks of "learning." This demeans the intrinsic worth of education and leads, in S. M. Miller's trenchant term, to "credentialism" in the larger society.

So, whether teachers fail or succeed in the promotion of learning, their attempts actually create those educational and social problems that most upset observers of present-day education. But if we abandon the notion that teachers should promote learning, we can eliminate most of our present difficulties.

To construe the teacher's role as that of improving the learning the student already has is to convert education into an optimistic, not a hopeless, enterprise. Forswearing attempts to control and meddle with those things they cannot and should not control, teachers will direct attention away from social and cultural phenomena, away from the biological makeup of their students and their family backgrounds, toward what they can and should change and reform: their own teaching behaviors. They will develop ways to elicit and modes to criticize their students' present knowledge. And they can both elicit and criticize—hence improve—their students' present knowledge, regardless of heredity and environment, and with no regard for their cultural and social backgrounds. This will not circumvent the reasonable demand for teacher accountability, but it will allow us to conceive it historically rather than teleologically. That is, we would expect teachers to maintain records of their students' ideas, skills, and dispositions—records in writing, on tapes, on video—that will reveal the students' progress in time, showing how some of the inadequacies, errors, and mistakes manifest at one time were diminished or eliminated by a later time.

To construe teaching as improving existing learning will probably lead to a reconstruction of the present educational structure:

tests, grades, and standards of achievement, as well as textbooks, timetables, and class organization would all undergo refinement and modification. But such changes would not be radical, sentimental, or romantic; they would follow from the new construction of the role of the teacher.

NOTES

1. J. Mc.V. Hunt, *Intelligence and Experience* (New York: Ronald Press, 1961).
2. J. A. Comenius, *The Great Didactic*, trans. M. W. Keatinge. (London: Adam and Charles Black, 1896).
3. John Dewey, *Experience and Education* (New York: Macmillan, 1938).
4. George Kelly, "Man's Construction of His Alternatives," *Clinical Psychology and Personality*, ed. B. Maher (New York: Wiley, 1969).
5. Carl Rogers, *Freedom to Learn: A View of What Education Might Become* (Columbus, Ohio: Charles E. Merrill, 1969).
6. See N. Postman and C. Weingartner, *Teaching as a Subversive Activity* (New York: Delacorte Press, 1969); see also John C. Holt, *How Children Learn* (New York: Pitman, 1969).
7. See Karl R. Popper, *The Logic of Scientific Discovery* (New York: Basic Books, 1959); *Conjectures and Refutations: The Growth of Scientific Knowledge* (New York: Basic Books, 1972); *Objective Knowledge* (Oxford: Oxford University Press, 1972). See also Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962), and Imre Lakatos and Alan Musgrave, eds., *Criticism and the Growth of Knowledge* (Cambridge: Cambridge University Press, 1970).
8. The Darwinian conception of education outlined here is the same as the ecological approach to improving schools that I present in Chapter 5 of this volume. There I suggest that we begin with the school that presently exists and try to find out what's wrong with it, modifying the existing practices, policies, and procedures of the school in light of the unrefuted criticisms of them. Here, in applying this ecological approach to the process of education itself, I suggest we begin with the learning or knowledge the student already has and try to find out what's wrong with it. Thus, we encourage and support him so that he will modify that knowledge in light of the unrefuted criticisms of it.
9. See Henry J. Perkinson, "The Apology of Socrates," *Journal of Educational Thought* (April 1970). See also Robert McClintock, "Toward a Place for Study in a World of Instruction," *Teachers' College Record* (December 1971).
10. See Maria Montessori, *The Montessori Method*, trans. Anne E. George, (New York: Frederick A. Stokes, 1912).
11. See Barbel Inhelder and Jean Piaget, *The Growth of Logical Thinking from Childhood to Adolescence*, trans. Anne Parsons and Stanley Milgram (New York: Basic Books, 1958).

12. Here, as throughout the chapter, I have adopted and adapted the epistemological theories of Karl Popper. In addition to the references in note 7, see also the "Autobiography of Karl Popper," *The Philosophy of Karl Popper*, ed. Paul A. Schlipp (LaSalle, Ill.: Open Court, 1974).

13. Arthur R. Jensen, "How Much Can We Boost I.Q. and Scholastic Achievement?" *Harvard Educational Review* (February 1969).

14. James S. Coleman, *Equality of Educational Opportunity: Addresses, Essays and Lectures* (New York: Vintage Books, 1972).

15. Jonathan Kozol, *Free Schools* (Boston: Houghton Mifflin, 1972).

16. Colin Greer, *The Great School Legend: A Revisionist Interpretation of American Public Education* (New York: Basic Books, 1972).

17. See, for example, Leon M. Lessinger, *Every Kid a Winner: Accountability in Education* (Worthington, Ohio: C. A. Jones, 1971).

18. See Henry J. Perkinson, *The Imperfect Panacea* (New York: Random House, 1968).

19. Paul Goodman, *People or Personnel: Decentralizing and the Mixed System* (New York: Random House, 1965).

20. Ivan D. Illich, *Deschooling Society* (New York: Harper and Row, 1971), and Everett Reimer, *School Is Dead* (Garden City, N.Y.: Doubleday Anchor Book, 1971).