# Section I

WHERE DO WE BEGIN?

Before one can engage in good curriculum dialogue, there is some basic background information that is important in order to form the context of any exchange of ideas. In the curriculum field, that means that the curriculum scholar must have a broad understanding of what schooling and education are all about.

Both articles in this section of the reader focus on the assumptions upon which educational decisions are made. Egan claims that the premises we use to build the foundations of our educational programs are fundamentally flawed. Eisner looks specifically at the assumptions used to explain the aims, content, and structure of schooling.

As you read these two articles, think about the following:

■ The experiences you had in K–12 education and evaluate them with respect to your current goals

■ How the schools are structured in your community and whether or not they are meeting the needs of your community

■ The changes you would make to the basic premises of education given the current environment in our schools

■ Eisner's assumptions and whether or not you agree with his analysis

■ What criteria you would use to "reform" our schools
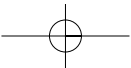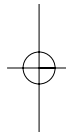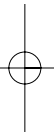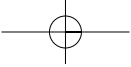
Article 1

WHY EDUCATION IS SO DIFFICULT AND CONTENTIOUS

KIERAN EGAN

SOCIALIZATION IS A GREAT IDEA FOR HUNTER–GATHERERS

For the educationalist today, this first great educational idea we inherit comes as a good news, bad news, worse news, and really bad news scenario.

I suppose our educational troubles began around a quarter of a million years ago when our hominid ancestors ran into an evolutionary snag. Around that time, it seems, hominid brains were increasing in size quite rapidly. The snag was the limits to which the architecture of the female pelvis could be stretched to enable the women to give birth to these larger-brained babies while also allowing the women to walk efficiently. The remarkable evolutionary solution was to give birth to the babies while their brains were immature and let them do most of their growing outside the womb.

This peculiarity of human brains and human childhood created the need for that extended care and instruction that has become a part of what we mean by education. Along with the larger brains came language and language was used prominently to tell stories (Donald, 1991, Ch. 7). The most important stories were designed to create for their hearers a conceptual image of what we may call the meaning of life. They gave to the young, and reinforced for the older, images of who "we" are and what we are doing here.

The good news is that the techniques invented in hunter–gatherer society to create a homogeneous image of "our" society, of "our" individual roles within it, and of the cosmos in which the drama of our lives is played out have worked with great success for countless generations. The continuing good news is that the procedures we have inherited from ancient oral cultures remain today wonderfully effective in socializing our young.

The bad news is that our evolution equipped us to live in small, stable, hunter–gatherer societies. We are Pleistocene people, but our languaged

brains have created massive, multicultural, techno-logically sophisticated, and rapidly changing soci-eties for us to live in. Now that's not so bad in itself, as our brains also can adapt to a huge range of social conditions. The bad news is tied into that ingenious evolutionary adaptation that led to the extended growth of our brains outside the womb. One result—wonderfully efficient for hunter–gatherer tribes—was to enable us to learn effortlessly in our early years a language, an image of our society and its norms and values, and images of the meaning of life, the universe, and everything. We are equipped, that is, very early and quickly, to orient ourselves conceptually. Whatever children learn from the stories they are first told becomes quickly fixed and serves as a template for future learning. This rapid and deeply etched early learning served hunter–gatherer soci-eties well because their stability and solidarity was sustained by their members all sharing an unques-tioned and homogeneous worldview or ideology.

If one were to try to model human conceptual development, it would be tempting to say that evolution equipped us with two kinds of learning. There is, first, that largely effortless learning of our early years, which we use to pick up a lan-guage and those images of our society and the cosmos. It seems to work a bit like cement or plaster of paris: At first it is enormously flexible, able to adapt to widely varied external con-straints, and then gradually it sets and becomes rigid. It also seems to be focused on very specific objects—like language social behavior, and so forth. The second kind of learning remains flexi-ble throughout our lives and is a kind of all-purpose utility, but it is more laborious and slow. The difference between the two is often said to be evident in the efficiency with which we learn a language and adapt to social customs in our early years, in contrast with the relative difficulty and inefficiency with which we learn a new language and adapt to new social customs later in life.

Jerry Fodor (1983) suggests that we might see the mind as having a set of input systems and a somewhat distinct central processor. The input systems are relatively specific to particular parts of the normal brain; they are focused on such things as touch, hearing, seeing, and language;

and they are fast and "stupid"—we can't *not* hear or *not* learn a language in normal conditions. The central processor is "smart" and is slow and gen-eral in both brain location and operations. This allows very fast responses to some things by the "stupid" brain systems and contemplation and analysis by the other. Fodor (1985) notes that, "it is, no doubt, important to attend to the eternally beautiful and true. But it is more important not to be eaten" (p. 4).

We might wisely be cautious in inferring such a sharp distinction in kinds of learning as we are still unsure about the underlying cognitive real-ity such distinctions refer to (Bruer, 1997). But for now it helps to clarify the bad news that comes along with inheriting the idea of socializa-tion *as a part of education.*

Socialization relies heavily on the early "stu-pid" kind of learning and the commitments it forms. If told that the earth is a flat disk that rests on the back of a turtle, nearly everyone will believe this and see the earth in terms of this belief. (An earthquake? The turtle shifted.) If told that it is a huge ball that turns on its axis at high speed while also traveling unimaginably fast around the sun, people will believe this. The cement-like learning of our early years can accommodate almost any-thing; then it fixes and becomes almost immov-able. The other, general purpose, learning capacity can, of course, accumulate knowledge that contra-dicts the first-formed beliefs; and we know that we can, as a result, change our earlier beliefs and com-mitments. We also know that this is rare and diffi-cult for most people.

The bad news, then, is that we live in a world that requires flexibility in adapting to changing norms, beliefs, and values, and evolution has equipped us to be socialized in a manner that cre-ates rigidity and unquestioning commitment to unchanging norms, beliefs, and values.

The worse news, which follows from the bad news, is that if we are really successful in social-izing, we get someone who is indoctrinated. Now most people tend to be very acute at recognizing the ways in which "others" indoctrinate their children but are largely oblivious to the forms of indoctrination they deploy themselves—"they" indoctrinate, "we" educate.

This leads to a conundrum. "We" distinguish indoctrination from education on the openness of inquiry the educator encourages about the values taught, whereas the indoctrinators teach "their" values as unquestionable truths. But we do not typically encourage our children to question the value of our kind of "openness of inquiry"—we teach its value as an unquestionable truth.

Thinking in language leads us to recognize and name things as distinct from all other things—*x* is what not-*x* is not, goes the logic. Whether this results from the hardwiring of our brains or from the way language shapes our consciousness, we have a powerful tendency to construct our conceptual grasp on the world in terms of opposites. Our sense of "good" is tied to our sense of "bad"—big to little, brave to cowardly, safety to security, and so on.

Socialization today not only fits us to a particular social group but also identifies "us" to ourselves as distinct from other groups. Becoming American or Canadian or English still involves learning about the distinctive qualities that characterize the excellence of one's nation by contrast with other nations which lack those qualities. Even within the country, whichever "we" belong to, we will identify ourselves again in contrast with others; so we conservatives or liberals identify ourselves in some degree by contrast with those liberals or conservatives.

Our seemingly inescapable tendency to oppositional thinking produces a horrible result when it works in socializing. It sets people against each other in greater or lesser degrees.

Socialization as an educational ideal worked well in hunter–gatherer tribes. But today we can't easily avoid squirming a little about the dilemma it creates for us. On the one hand, for our children to become familiarly at home in our society, we have to allow considerable scope for socialization to occur unimpeded; and, on the other, our commitment to rationality in our everyday affairs is affronted by the indoctrinatory element in successful socialization. On the third hand, to fail to socialize adequately produces alienation. Our general solution to the dilemma has been to recognize that single-minded

socialization—à la Hitler Youth—is unacceptable and that we need double-mindedly to give rational reflection a large role in the process.

The difficulty of building flexibility into socialization creates a discarding of generations, as the conditions they were conditioned to deal with change under their feet. The flexibility was to come from being able rationally to reflect on events and adapt to them where appropriate. And that's where we try to plug Plato in.

THE ACADEMIC IDEAL AND ASSES LOADED WITH BOOKS

The next really big development in human intellectual culture after the development of language was the invention of literacy. Clearly literacy has been in general a good news scenario, but it also carries for the educator some bad news, some worse news, and some really bad news.

The good news is easy to see. Literacy has allowed generations of people to record their knowledge and experience. Further generations can compare that recorded knowledge with what they can see or discover and leave a more accurate record; and they can compare others' experience with their own, enlarging and enriching their experience in consequence. Today we have stored vast amounts of knowledge in written records, and we have access to a vast array of varied human experience. These enable our minds to transcend our own time, place, and circumstances.

Eric Havelock (1963, 1982, 1986) argued that Plato's great achievement was to work out how to think once alphabetic literacy became common. The result is both described and, if you'll excuse the term, paradigmatically exemplified in Plato's dialogues. When the best accumulated knowledge coded in writing is learned, Plato taught, it transforms the mind of the learners and enables them to understand the world more accurately and truly.

The bad news in this for today's educators is that they have to work out what, among the vast accumulation available, is the best knowledge for

children to learn. Herbert Spencer (1966, Ch. 3) was confident that his answer to the question "What knowledge is of most worth?" was unassailable. But, of course, everyone assailed it. Is the best knowledge that of the "timeless classics . . . , the best that has been taught and said," as Matthew Arnold (1986, p. 458) argued, or of urgent knowledge about current social conditions, or of economically productive skills, or should children's own interests determine their curricula, or should our school curricula be a smorgasbord of all the above laid out by committees of "stakeholders," or should we have different curricula for different people, or a common or core curriculum for all, or what? The bad news is not so much that we don't know the answer in any generally agreed way, but we don't seem able to agree on how we might go about reaching an agreed upon answer. In the absence of any convincing theoretical grasp on the question, it is left to political power—to the committees of "stakeholders" laying out the smorgasbord. This might be a good solution if we think of education simply as socializing, but it is a lousy solution if we think education has something to do with that ideal Plato articulated for enabling us to understand the world and transcend the (socialized) conventions of our time and place.

The worse news is that, whatever the knowledge some group decides is worthiest for inclusion in our curricula, most students find literacy a sufficient barrier that they will be unable to access it anyway.

For most children, school disrupts and significantly destroys the orality of their early years by insistently trying to teach literacy and the knowledge coded in literate forms. For most children, school fails to provide the glories of literacy and to provide the access to literacy's transcendent culture.

The really bad news is that there isn't any knowledge stored in our libraries and databases. What we can store are symbols that are a cue to knowledge. People can read the symbols and not understand the knowledge, or partially understand it, or have a vague sense of what it means. This happens in schools to such an extent that we expect it and grade children by the degree of understanding we think they have achieved.

The problem here is that knowledge exists only in living human tissue, and the literacy codes we use for storage are cues that need to go through a complex transformation before they can be brought to life again in another mind.

Many educationalists, and even more non-educationalists, confuse the codes with knowledge. They assume that if the students internalize the codes they will have the knowledge. Alas, this is not so. We can relatively easily compel or persuade or seduce people into internalizing literate codes—so they can pass exams and seem knowledgeable. This kind of learning has been the bane of insightful educators down the centuries. What it produces is not knowledgeable people but, as Michel de Montaigne put it, asses loaded with books.

This well-schooled, exam-passing, information-loaded person has always exasperated the major educational thinkers. That bookish man who described how his own early reading set his mind afire—J. J. Rousseau (1762/1979)—in a characteristic outburst famously wrote, "I hate books: they only teach one to talk about what one does not know" (p. 184).

We all recognize the difference between genuine knowledge and accumulated codes—we talk of education as against training, wisdom as against "book learning," insight as against literal thinking, and so on. But our schools are not good either at recognizing the difference or, consequently, promoting the genuine article rather than the counterfeit.

The really bad news, then, is that some kind of magic (or technique we don't understand) is required to bring back to new life in a new mind the desiccated written codes in which knowledge was stored by some other, perhaps long-dead, human mind. But even if we can manage the magic, I'm afraid there is even worse news than the really bad news. That is, even at its best, Plato's academic ideal can't deliver on its promises.

Plato describes an educational program that will carry the mind from the confusions and

illusions of the folk physics, folk psychology, folk sociology learned effortlessly in our early years through a curriculum of disciplined knowledge to an understanding of the true nature of things. It is a program that requires the sacrifice of easy pleasures and the deployment of our laborious general learning capacity to remake all our early false knowledge, converting our minds always toward rationality and truth and away from the seductions of beliefs, myths, and superstitions. Plato's idea is probably a better educational idea than anyone before or since has had, but it is not adequate. The worst news, then, is that the academic ideal of education is designed to achieve a kind of understanding it simply can't deliver—its justification is an ideal that is unrealizable.

THE IDEAL OF DEVELOPMENT

I linked the two previous educational ideas/ideals with, first, the development of language and, second, the invention of literacy. For the sake of symmetry, it would be nice to link this third educational ideal with the invention of printing and the new learning and "Enlightenment" it seemed to many in Europe to promise. Even if the causal connection is not quite so easily made, the printing press was certainly importantly complicit in those intellectual changes, which included the radical rethinking of the nature of education in the work of John Locke (1632–1704), Etienne Bannot de Condillac (1715–1780), and, crucially, Jean-Jacques Rousseau (1712–1778).

Rousseau argued that human beings also have a nature and a natural process of development that could be disclosed by careful observation aided by reason. As we can observe the body's regular pattern of development from birth to senescence, so we can, with more difficulty perhaps, observe the mind's regular pattern of development. Education was reconceived as the activity of supporting the fullest achievement of the natural process of mental development. This idea came as good news for educationalists.

The good news was that it promised to solve a problem that Plato's idea left us with. Rousseau (1762/1979) acknowledged that Plato (hitherto) had been the greatest educational thinker. He had recognized how knowledge shaped the mind and how particular kinds of abstract knowledge and the disciplines they required shaped the mind to understand the world in more adequate and effective ways. But it had become clear that this wasn't enough. The common product of a Platonic education was asses loaded with books—informed pedantry without imagination, originality, or vigor. Rousseau proposed that the missing element was the knowledge that we could deduce from careful observation of the natural course of development.

So Plato, Rousseau (1762/1979) suggests, was right about the importance of knowledge in education, but his insight was of limited value without recognition of the stages at which the young can best learn the various kinds of knowledge. Plato failed to recognize the mind's autonomous growth, and so his conception of mental development was just a mirror-image of his conception of the logic whereby knowledge was elaborated. By understanding the autonomous growth of the mind, one could coordinate the logic of knowledge elaboration with the psycho-logic of mental development.

The continuing good news is that educationalists more or less universally now believe that it is important to attend to the nature of the child's learning at particular developmental stages, to different learning styles, and to that range of sensitivities to learners that became a hallmark of progressivism. Once attention to the distinctive psychological development of the child was made central to educationalists' understanding of their task, a number of considerable benefits followed. The first and perhaps still the most important was the recognition that failures to learn the curriculum might be due to faults other than the child's recalcitrance. It might, for example, be due to the method of teaching, or the stage at which a topic was being taught. This recognition led to relieving children's school lives of the constant fear of violence for failures to learn.

The combination of Plato's idea about knowledge and Rousseau's (1762/1979) idea about the mind was launched by Rousseau with the promise of a revolution in learning. Through the 20th century, each claim to have more adequately exposed the developmental process—most notably in the work of Jean Piaget—has led to renewal of the promise of a revolution in learning.

The bad news is that the revolution in learning has stubbornly refused to occur. It seemed and still seems to many that research, which discloses increasing knowledge about children's development and learning must lead to at least evident improvements in general education. The trouble with promising a revolution in learning is that people expect to see some evidence of it in the learners.

What did become evident was that the commitment to freedom for natural development didn't take one very far. As an educational idea, it makes it difficult to determine a curriculum and tends to leave the selection open to local prejudice, charismatic enthusiasts, or blind chance. To keen progressivists, this doesn't matter that much because the curriculum isn't the point. We have had a century of fairly intensive experiments in implementing varied forms of the idea we have inherited from Rousseau, of progressivism's interpretations of it, and of educational psychology's attempts to flesh it out scientifically. It seems fair to observe at this point that something is still missing. Plato's and Rousseau's ideas together are not able to bring about for most children the kind of learning we see in some and the kind of learning that it doesn't seem unreasonable to expect from hugely expensive schools. The promise of Rousseau's idea has not been delivered. Alas, it hasn't worked.

The worse news . . . What? There is worse news than that it hasn't worked? Yes—that it can't work. The worse news follows the observation that human beings don't have a nature. Well, that overstates it—to underline a point. There are obviously regularities in human mental development, but they are so tied up with our social experience, our culture, and the kinds of intellectual tools we pick up that we can't tell whether the regularities are due to our nature, to our society, to our culture, to our intellectual tools, or what. We can't simply measure the regularities, which turn out to be pretty irregular from person to person, and see through them to our nature or to some autonomous developmental process.

The really bad news is that Rousseau (1762/1979) put in place for the modern educational world a binary distinction between an autonomously developing mind and an "external" body of knowledge. Once education became thought of in terms of knowledge and mind (content and method, curriculum and instruction), the problem became how to get them back together again. The history of educational thinking in the 20th century prominently involved a bizarre war between these two—between those who were "child centered" and those who were "subject centered," between progressivists and traditionalists.

Tatters of the old classical curriculum hang around, partly out of an intuition that there might be something in Plato's idea and partly to satisfy the minority who still want that old-style "ornamental" education. For the core of the new progressive curricula, however, utility trumps transcendence every time—Career and Personal Planning or Drug Education or Economics for Everyday Living or Computers 101 trump Latin hands down in the competition for limited curriculum time.

Rousseau's (1762/1979) dichotomy has given us a century of polemical battles between supporters of "child centeredness" against "subject centeredness."

INSTITUTIONS BASED ON INCOMPATIBLE IDEAS

We obviously haven't inherited these three great educational ideas in the more or less discrete packages described above. We don't, of course, think of our conception of education as a composite but rather as a unitary idea. But those three ideas have become entangled with each other through the centuries and have produced our contemporary schools and curricula and teaching practices.

When we do note differences between the competing demands of these three ideas—when, for example, politicians or businesspeople demand from the schools more relevant social knowledge or work skills or when some neoconservatives demand we concentrate on developing academic knowledge—we say that there are "tensions" among the requirements of the various "stakeholders." The job of the good educational administrator is to balance these tensions so that the requirements of all the major stakeholders are met to an adequate degree.

Schools provide an exposure to academic material to all students and clearly allow some to excel in academic work, they socialize all students in a basic way while avoiding fanatical extremes, and they attend to the general development of all children and provide special help to some who clearly need it. Of course there are tensions among the three general educational ideas that drive our schools—successful education is achieved by finding the right community-supported balance.

I think this complacent view is mistaken and that the three ideas undermine each other rather than complement each other.

Consider this scenario: Let us say you are a movie fan and enjoy going out to a cinema once each week. The government imposes a new requirement on cinemas. As you come out of the cinema, you will be required to take a test on the movie you have just seen. You will be asked the color of the villain's car in the chase scene, or the adequacy of the motivation of the leading woman's sister, or the gist of the alien's speech before it transmogrified, or the name of the brother-in-law's pet dog, and so on. Your score on the test will determine your salary for the next week, when you will face another test and another salary adjustment. Consider for a moment how such tests and their consequence would likely influence your watching movies. At the very least, they would change what was carefree entertainment into anxiety. You would also spend a lot of effort watching movies trying to second-guess the kinds of questions you are likely to be asked, and the focus of your attention would be shifted to fit your expectations of the test.

What does this remind you of? Right. School. The above absurd scenario creates a social institution—with, no doubt, huge testing services and solemn officials and entrepreneurs setting up test-coaching companies—which confuses two conflicting aims. There is no problem with having two aims for an institution except if the aims conflict with each other. If one of our aims for an educational institution is the pursuit of academic knowledge, we will interfere with that in all kinds of destructive ways if we then impose a social sorting role on the institution and use academically inappropriate testing to do that social sorting. Also the social sorting role would be confused because academic prowess—which we are only marginally testing for anyway—is hardly the most important determiner of social value. That is, this kind of undermining of separate and conflicting aims is precisely what we get if we try to make the school an institution that tries both to socialize and implement the academic ideal at the same time. The result is that neither is adequately or sensibly achieved, as, in the cinema scenario, neither carefree entertainment nor an appropriate manner of determining salaries is achieved.

Yet we have created such an institution and keep trying to make it work to realize conflicting ideals. Adequate socialization requires successfully inculcating a set of beliefs, values, and norms of behavior in the growing child. The academic program is specifically designed to enable the growing child to question the basis for any beliefs, values, and norms of behavior. The two aims pull against each other: The more successfully one socializes, the less one achieves the academic ideal; the more successfully one inculcates disciplined academic thinking, the less easy it is to socialize successfully.

The academic commitment to shaping the mind by teaching disciplined forms of understanding isn't compatible with the belief that the minds of different people can be optimally developed by knowledge chosen to suit their particular style of learning, kind of intelligence, needs, and interests. One cannot have two masters, especially when both mandate different things. We can't construct a coherent educational institution using radically different criteria.

But, of course, that's precisely what we require of our schools today. We require that they acknowledge, and accommodate as far as possible, different styles of learning and different ends of the process for different people. "Education" for one child may have a quite different character from that attained by another; quite different "potentials" might be developed and each be an example of successful education. We require also that the academic ideal be acknowledged, which recognizes education only in the degree to which minds are shaped by progress in understanding the range of disciplines. The result, of course, is not a coherent curriculum but one that tries to accommodate both conflicting principles. The result, also, is perpetual strife by adherents of the conflicting principles fighting about which should have greater influence over children's education.

CONCLUSION

We have inherited three foundational ideas about education. Each one of them has flaws, at least one flaw in each being fatal to its ambition to represent an educational ideal we might reasonably sign on to. And the worse news is that each of the ideas is incompatible with the other two. These warring ideas hovered around the cradle of the state schools, proffering their gifts. The schools eagerly took them all, and so education remains difficult and not anti contentious.

Well, having thought about the ideas we usually think with, where are we? A plausible answer is, in something of a mess. The commonest response to inspecting the foundations of our ideas and finding them inadequate is to turn and carry on with everything much as before. I mean, think of the trouble we would have to go to if we were to conclude that indeed our conception of education is flawed in the way this article has argued and that we should do something about it. In general, most people seem to be sustained by institutions not ideas. That the institutions are as they are because of particular ideas seems not to be a matter that concerns most people in the education business. Practical folk just get on with doing the best they can within the institutions that exist. And, of course, without this pragmatic commonsense approach, we would be in a bigger mess.

But what would we have to do if we take ideas seriously, understand how they shape institutions, and conclude that the above argument is right? First off, we need a better idea of education than the fractious confusion we currently stumble along with. And where will we find such things? Well, we just have to make them up. If you want an example of a new conception of education that avoids the problems of our current tripartite incompatibilities, may I recommend *The Educated Mind* (Egan, 1997). In that book, I show how we can, drawing somewhat on Vygotsky's ideas (Reiber & Carton, 1987), reconceive education as a process of stimulating and developing a set of kinds of understanding. From such foundations we can then derive new forms of curricula, teaching practices, and appreciation of varied forms of student learning. The result is not so strange that it will seem entirely alien to our current traditions, because it grows out of them.

If we want to improve our schools, it is with the abstract and awkward realm of ideas that we must first deal.

Discussion Questions

Why does Egan believe that modern schools fail to educate children sufficiently?

What do you see as solutions for the problems Egan describes?

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Article 2

QUESTIONABLE ASSUMPTIONS ABOUT SCHOOLING

ELLIOT W. EISNER

The aims, content, and organization of schools are so embedded in our culture that the assumptions on which they rest are seldom examined. Schools are a part of the furniture of our communities, historically rooted institutions that we take as much for granted as the streets upon which we walk, the stores from which we purchase goods, and the houses in which we grow up and raise our families. Yet the fundamental features of schooling—its dominant practices, its mode of organization, its reward system, its aims, its *culture*—have an extraordinary impact on how the young come to think about knowledge, how they regard success, what they consider intelligent, and how they see their place in the world. In short, the institution we know as "school" teaches by its very nature.

And the nature of schools is rooted in the historical traditions, values, and assumptions into which we have been socialized. Although we act on these values and assumptions, we seldom examine them, even as we try to influence schools.

Schools have a special difficulty in changing their nature. Part of this difficulty stems from the fact that all of us have served an apprenticeship in them—and from an early age. Indeed, teaching is the only profession I know in which professional socialization begins at age 5 or 6. Students, even those of so tender an age, learn early what it takes to "do school."[1] They learn early what a teacher does in a classroom. They learn early how they must behave in order to get on. In fact, aside from their sleeping hours, most children spend more time in the presence of their teachers than they spend in the presence of their parents. In short, students and parents, like the rest of us, know what to expect of schools. Those expectations, rooted as they are in our past, also shape our present.

Given the impact that schools have on the young, it seems useful to examine some of the assumptions, indeed some of the questionable assumptions that give direction to our schools.

1. The aim of schooling is to get all students to the same place at about the same time. Schools are sometimes likened to railroads. Students are to get aboard as 5- or 6-year-olds and, when teaching and learning go well, to arrive at a relatively common destination by the time they're 18. The basic assumption is that the goals of schools should be common; the differentiation of destinations is problematic since it is believed that to differentiate aims is to condemn the less able to positions in society that are neither as lucrative nor as personally rewarding as those destinations available to the more able. Thus a common set of goals is, some believe, a mark of educational equity.

As we all know, the destinations that so well suit the children of the educationally savvy often have the very effects that those who worry about the differentiation of goals want to avoid. Those talented in ways the school does not reward—or even recognize—continue to fall short when they compete in a race that they must struggle to win. Rather than conceive of educational progress as a race whose garlands go to the swiftest, running on a track for which their life experiences have advantaged them, we would do well to recognize both the array of talents that all youngsters possess and our need to honor and foster competence in a considerably wider range of abilities than we now acknowledge.

Given this perspective, the good school, in my view, does not expect all students to arrive at the same destination at the same time. Indeed, it provides conditions in which variability among students can be increased. What we ought to be doing in schools is increasing the variance in student performance while escalating the mean. In an ideal approach to curriculum and instruction— an approach in which every aspect of teaching is ideally suited to each student, and each aspect of curriculum is appropriate for the abilities students possess—variability among students will increase, not decrease.

The virtue of such an outcome for society is that it promotes self-actualization by enabling students to play to their strengths and so to give to one another and to society precisely those gifts that others cannot give.

2. A teacher should work with 30 youngsters for an academic year and then students should move on to another teacher. The way we have organized schools in the United States, with few exceptions, is to have youngsters at the elementary level work with a particular teacher for 9 or 10 months and then move on. What is especially ironic about this arrangement is that, at about the time the teacher gets to know the child, the child leaves the teacher and heads elsewhere. What is doubly ironic is that the test data that are usually secured from tests given near the end of the academic year are unavailable to the teacher in whose class the students were tested, since by the time the teacher receives the scores, the students have moved to another teacher.

It is not unusual for teachers to resist working with the same group of students for a 2- or 3-year period. Elementary school teachers, like professors, develop a repertoire of skills and acquire a body of content knowledge that they bank on using in their teaching. Their closets are filled with materials that are quite familiar to them, and the prospect of assuming responsibility for students at a grade level higher or lower than the one they know requires them to become competent in new material. For many teachers, this is daunting. In describing this state of affairs, I am not defending it, only explaining that since efficiency and effort are issues for teachers, as they are for all of us, it is understandable that some teachers balk at the prospect of staying with the same class for more than a year.

Not all schools organize themselves along these lines or build their programs on the assumption of a 9-month contract. Many Waldorf schools, for example, have students remain with the same teacher for 6 to 8 years. They also operate in

many locales without a principal. Both can be done.

3. The best form of school organization is age grading. In many ways, this assumption is related to the previous two. The graded school system was invented in America in Quincy, Massachusetts, in 1847.[2] The idea is very simple. Children of the same age should be grouped together, and that grouping should be enumerated by grade level. Thus, 6-year-olds should be in the first grade, 7-year-olds in the second grade, 8-year-olds in the third grade, and so on.

The age-graded school system is an administrative and organizational convenience, but it has very little to do with what we know about child development. For example, consider the range of reading ability in an average elementary school classroom. It turns out that the range of reading ability approximates the grade level.[3] This means that in the second grade, when children are approximately 7 years old, the range of reading ability is about 2 years. In the third grade, the range is about 3 years; in the fourth grade, about 4 years. Thus in a typical fourth grade, some students will be reading at the sixth-grade level, and some will be reading at the second-grade level. By the time students reach the sixth grade, some will be reading at the third-grade level, and some will be reading at the ninth-grade level.

As children mature, their personalities become increasingly distinctive. Their aptitudes develop, their proclivities emerge, and they develop distinctive interests, traits, and ways of working. The idea that all children who are 10 are or should be at the same level is a bogus expectation. In fact, a teacher who taught only a body of content defined by a single grade level would be providing a level of teaching inappropriate for most of the class.

4. The real outcomes of schooling can be measured by tests employed within the school. In the United States, we have developed a sophisticated technology of testing. This technology was given a major push during the First World War when tests were first used to select men suitable as candidates for officers' training. American schools give more tests to students each year than schools in any other country in the world. The testing industry in the United States is large and highly profitable. One argument for using tests is that teacher judgment cannot be trusted, while tests, which are standardized and therefore yield comparable data, have a degree of precision that teachers cannot match. Moreover, tests are statistically reliable instruments, and equivalent forms yield scores that are highly correlated. Thus, tests possess a scientific aura and are used extensively as the primary data source for making judgments about the quality of education students are receiving.

One important educational purpose of testing is to provide information that has some relationship to tasks that go beyond the particular items to which students are asked to respond. However, getting a high score on a test that has little predictive or concurrent validity is no educational virtue. Yet this is precisely the problem that pervades testing practice. What test scores predict best are other test scores. Their status as proxies for other forms of performance is dubious.

In any case, the function of schools is surely not primarily to enable students to do well on tests—or even to do well in school itself. What one wants, it seems to me, is to provide a curriculum and a school environment that enable students to develop the dispositions, the appetites, the skills, and the ideas that will allow them to live personally satisfying and socially productive lives. In other words, the really important dependent variables in education are not test scores or even skills performed in the context of schools; they are the tasks students are able to complete successfully in the lives they lead outside of schools. There is a huge difference between knowing how to read and having an interest in doing so. And interest shows up in out-of-school contexts.

I would argue that the major aim of schooling is to enable students to become the architects of their own education so that they can invent themselves during the course of their lives.

5. Knowledge consists of true assertions about empirical states of affairs. Therefore, what students cannot say, they do not know. This belief is rooted in classical Greek epistemology and silently permeates modern schools and, even more broadly, modern culture. *Logos* was the term the Greeks used not only for words but also for knowledge—more specifically, for reason. Reason, the Greeks believed, required the use of language, since it depended upon logic, and logic deals with relationships between the meanings of words that are used to form propositions. Indeed, to have scientific knowledge one must provide warrants for one's assertions. What is not assertable is not testable. And what is not testable cannot be warranted.

In schools, we place a premium on the use of words and on the use of numbers. Literacy and numeracy, as they are referred to, are regarded as not only the primary processes we wish to promote, but also the most sophisticated manifestations of human intelligence. As a result, this view—often unarticulated, but expressed in the choices we make about what to teach and about how much time to devote to doing so—has substantial implications for the breadth of our curriculum and for the equity of our treatment of students whose aptitudes are irrelevant to the school's priorities.

The limits of our cognitive life are not defined by the limits of our language. As [Michael] Polanyi points out, "We know more than we can tell."[4]

To take such an acknowledgment into serious consideration we would need to provide opportunities for students to work in areas in which reasoning is employed, but such reasoning would have to pertain to forms of problem solving that depend not on the uses of logic but on the organization of qualities, including, but not limited to, linguistic qualities. This kind of work is best exemplified by artists who make sophisticated judgments about the ways qualities are composed. Such qualities emerge in the visual arts in the context of visual imagery, in music in the context of sound, in movement in the context of dance, in poetry and fiction in the context of language chosen for its expressive and evocative potential. I speak also of those who work in the universe of practical activity, where the application of algorithm, rule, and even logic is often irrelevant or inappropriate to the successful execution of a task.

Clearly, considerable thought must be devoted to the place of such matters in our curriculum, the amount of time to be devoted to them, the manner in which they are to be employed in classrooms, and the like. But as long as the nonlinguistic expression of human intelligence is marginalized in school programs, our programs will fail to develop the rich varieties of human potential that our students possess. We will also continue to emphasize curricular content and aims that create educational inequities for students whose areas of greatest potential are either marginalized or absent from school programs.

6. Teaching at its best is the application of scientific knowledge to practical states of affairs emerging in the classroom. One of the dominant assumptions in universities is that the scientific work that researchers do will yield the theories and generalizations that will provide the procedures that can then be disseminated to those who function in particular contexts. For example, research in agronomy is designed to produce knowledge that will enable farmers to increase yield per acre. The dissemination process is from the university researcher, to the field extension officer, to the farmer, and ultimately to the society. It is a top-down, scientifically based approach to improvement. The same model has dominated our assumptions about the dissemination of research in the field of education.

What is discounted, however, are the limitations of generalizations and theories when practitioners need to apply them to the particular situations in which they work. First, most theories and generalizations in the social sciences are inadequate for addressing the problems within their own discipline, let alone the particular circumstances in which individual teachers and students work. As Joseph Schwab has pointed out, theory addresses ideal states of affairs.[5]

Teachers, however, deal with what is particular or idiosyncratic. Second, theories used to understand phenomena reveal only one side of the issue, the side theory addresses. All problems in education are multifaceted, and no single theory can encompass the variety of factors that must be considered. Third, while the aim of the researcher is to know, the aim of the practitioner is to act and to make good decisions in the process. Practitioners are not primarily concerned with the production of scientific knowledge; they are concerned with the conduct of efficient, effective, and, at its best, satisfying and morally right action.

What the dominant assumption about the connection between research and practice neglects is the kind of practical knowledge that Aristotle alluded to when he contrasted productive and theoretical knowledge. Practical knowledge aimed at the achievement of moral ends is what the Greeks referred to as *phronesis.*[6] Practical knowledge is concerned with moral decision making. But even more than Aristotle's characterization of practical knowledge, teachers are not only engaged in practical activity; they are also engaged in artistic activity. They are engaged in the act of creating something—an explanation, a relationship between themselves and their students, an activity that will effectively introduce students to an issue, problem, or dilemma. In short, teachers are makers of things, and to the extent that things well made constitute an art, a theory of teaching predicated on the assumption that teachers simply or mainly implement what researchers discover is naive and ill founded.

The conception of teaching that I have discussed implies that we need to address the conditions through which artistry in teaching and in other forms of practical action can be promoted, improved, and developed. It also implies that there should be a much greater parity between those who work in the university and those who teach in our schools. Practitioners have a kind of knowledge that might be referred to as "insider knowledge," a kind of knowledge that can be secured only in the context of practice itself.[7]

This is a context to which teachers have access, and it is one that can inform the views of theoreticians. And even beyond this characterization of the conditions of improved teaching, we need to recognize that teachers can also inform one another if they have opportunities in the course of their day to discuss with their peers common problems and individual achievements. We need to think about the ways in which such arrangements can be created, for in the end such arrangements will have much to do with the improvement of teaching.

7. The best way to organize the curriculum is to identify its constituent disciplines and then to create a series of small steps within each so that the discipline can be learned. A disciplinary orientation to curriculum is especially attractive to professors and other academics who themselves work within a disciplinary structure. The tacit view is that a solid education prepares students to think like those in the academic disciplines. This view curriculum was salient in the United States in the 1960s.[8] It was the view that Jerome Bruner advanced at a time when America was concerned with its position in the race for space. People who were anxious about the quality of education and who believed that curricula had softened under the onslaught of progressive education saw in a return to the disciplines a return to intellectual rigor.[9]

What we learned was that, although a disciplinary orientation to curriculum was conceptually appealing, it also tended to lack relevance for many students.[10] Academic hurdles were set up that resulted in a reduction of high school enrollments in physics, chemistry, and other fields believed to be intellectually rigorous. Thus the push toward a curriculum that was discipline-oriented had just the opposite effect from the one we wanted to achieve.

The kinds of problems that the average citizen addresses are, as I suggested above, transdisciplinary or multidisciplinary. They are seldom adequately addressed through a single discipline. In fact, they often require modes of thought that are not defined within a specific discipline.

Trying to understand the social conditions of young people requires much more than the application of economic theory or sociology or history; it requires something that might be called firsthand contact with the young themselves. Furthermore, designing an educational program that is almost exclusively mediated through disciplinary language denies youngsters the opportunity to think with and within forms of representation that are nonlinguistic.

The development of mind is related to the modes of thought that schools enable and encourage students to use. The curriculum that is provided in schools is essentially a mind-altering device, and our choices about what students will attend to and the forms in which that material is presented and responded to are of critical importance.

8. School reform is most effective when competition among schools is promoted and when supervisors can mandate goals, manage teachers, monitor students, and measure outcomes. Public anxiety over the quality of schools typically leads to pressures that, in turn, lead to higher levels of prescription for schools. These include the articulation of standards and milestones to be met and the use of an assessment program to measure student performance. In the United States, test data on student performance are arrayed for schools within school districts and from state to state. Test scores are then produced and published in local newspapers in what are the equivalent of league tables that identify the position or rank of each school or district. School reform is being driven by a competitive model in which student scores constitute the data to be rank-ordered. That competition should be seen as motivating is, of course, entirely consistent with the values of a capitalist economy. The tacit belief is that, if competition is good for business, it's good for schools because schools, when you get down to it, are businesses, and the business of schools is producing measurable student performance.

This argument seems impeccable, but it has a number of troubling consequences. First, knowing someone's position in a distribution tells you nothing about what needs to be done to improve it.

Second, the belief that education reform is likely to endure if a top-down approach to school improvement is employed is another dubious assumption. Top-down approaches often begin and end with changed education policies, while schools continue on their merry way, largely oblivious to policy changes. Or when schools are not wholly oblivious to policy changes, they engage in forms of adaptation that give the illusion of change but do not constitute its reality. Indeed, unless teachers and school administrators buy into reform efforts, unless they are a part of the group that participates in designing the reforms, little is likely to happen. After all, the only place where education reform makes an educational difference is where the rubber meets the road: in classrooms. And in classrooms, teachers are kings and queens. Thus, the idea that policy can be prescribed from on high, issued ex cathedra, is a comforting one for policy makers, but it is a problematic one as far as school improvement is concerned.

9. Artistry in teaching, when it occurs, is basically the result of the absence of scientifically grounded knowledge of teaching practices. This questionable assumption is, again, rooted in the belief that science is the only dependable source of knowledge and that artistry is neither a realistic aspiration nor a dependable resource for the conduct of practice. I would argue that any practice at its best is an artistically crafted affair. In the practice of surgery, when decisions about a course of action must be made, artistry is present, since scientific knowledge is never entirely adequate for the treatment of a particular patient with any particular disease. Indeed, one of the important criticisms of modern-day medicine is that individuals are reduced to generalized cases—he's a tonsillectomy, she's an appendectomy, he's a fractured femur, and the like. Somehow, the individuality and personal particulars of the patient get lost. The loss of individuality is not simply a psychological liability; it has consequences for

the success of medical practice, since to miss the distinctive features of the individual case is to hamper diagnosis and treatment.

Artistry in teaching represents high levels of pedagogical performance. Artistry depends on sensibility, it uses imagination, it employs technique, it takes pride in its craft. Teachers as artists are sensitive to the tempo of the classroom, to matters of timing, and to the quality of their own performance and the ways in which it can be shaped to be appropriate for the occasion. Such considerations are in no way prescribable from scientific research.[11]

I wish to make it clear that, as I speak about the limits of scientific theory in education, I have no intention of dismissing research by consigning it to the junk heap. Science gives us one very useful approach to the comprehension of action and its improvement, but it is only one approach. The arts and artistic forms of thinking have generally been neglected as ways of knowing and as qualities of performing. My aim here is not to dismiss science, but to call attention to additional ways of thinking about thinking in the context of practice.

10. The best way to identify schools that work well is to examine their students' test scores. Ironically, we encounter tests in just a few places outside of the context of schools. Thus, we have designed a system that employs culturally rare events to make significant judgments about the quality of education students receive.

This system has several important consequences for schools. First, the curriculum typically gets narrowed so that it reflects a relatively narrow array of what tests are capable of measuring. Second, the tests themselves have very little predictive validity on most of the tasks and forms of action that students engage in outside the context of schools. Third, the use of tests leads students to focus their attention on grades or scores and thereby diverts attention away from engagement in the task itself. Extrinsic rewards gradually displace intrinsic satisfaction.

The quality of education students receive is determined by much more complex and subtle forms of attention. To know about the quality of education students receive, one must be in a position to appraise the significance of the ideas, skills, and attitudes that a school is developing. This typically requires attention to the culture of schooling and not only to the behavior of students. One needs to know something about the kinds of questions that are being raised by both students and teachers; about the sorts of opportunities students have to formulate their own purposes and to design ways of achieving them; about the degree to which multiple forms of representation are promoted, not only through the literal use of language and correct computation, but also through such poetic means as the visual arts, music, and dance. The forms of consciousness and understanding of which humans are capable are not exhausted by what is measurable or by what can be articulated in the literal use of language.[12]

To call for this wider agenda for education and to identify its features as criteria for appraising the quality of educational practice is not to reject the need to promote literacy and numeracy in their conventional forms. It is a plea to recognize a wider educational mission and to use a vision of that mission as a basis for judging and improving schools. Raising test scores on narrow measures of educational achievement is no significant educational victory.

11. The primary content that students learn in school is what their teachers intend to teach them. John Dewey once remarked that the greatest fallacy in education is the assumption that students learn only what they are being taught at the time.[13] In fact, what students learn is both more and less than what teachers intend to teach. They learn less because students seldom achieve the lofty aims that teachers hold for them; our ambitions, educationally speaking, virtually always exceed our capacity. Indeed, if all students achieved what we hoped they would, we would probably regard our aims as being too low.

At the same time, students learn more than we intend to teach. They learn more because what

they learn is not simply a function of what teachers intend to teach, but of what students themselves bring to the table. The concept of interaction is key here. The meanings that are made by students are a function of their intentions and the conceptual material they bring to the situation that teachers create. And since for each student that background is in some degree different, meanings always differ. These meanings are related to the interaction between the individual and the situation that is created. Teachers may think they are teaching one thing, but what students learn may be quite another. A teacher might intend to help students understand quadratic equations, while the student may intend to get a passing grade in the course or to use the math class to do homework for a history class.

These observations imply that schools need to create situations that engender aims for the student that are congruent with those of the teacher. To say that they ought to be congruent is not to say that they must overlap completely. Indeed, they cannot. Yet, when the student's aims are educationally marginal—or worse, miseducational—teaching cannot have educational value. Students learn quickly to make the kind of moves that enable them to get by without being touched by the material they study.

12. Some subjects are primarily affective while others are primarily cognitive. It is unfortunate that our general conception of cognition is that it requires linguistic forms of mediation. As I indicated above, we associate knowing with linguistically mediated thought. But cognition as a term is not limited to what can be linguistically mediated.[14] Cognition refers to the process of becoming aware.[15] Cognition depends on human sensibility, and the more differentiated the sensibilities, the greater the degree of awareness. Indeed, it is the content of such sensibility that serves as the material to which language refers. The best way to ensure that students will engage in meaningless verbal learning is to make sure they have no experience of that to which their language refers.

Concept formation, therefore, is embodied in experience with qualities, and qualities are pervaded by human affect. Thus, the mathematician and the logician, two individuals whose work seems to be unrelated to qualitative matters, are in fact dealing with relationships that, at their best, are themselves qualitative and from which feeling is evoked. When it comes to the arts, we have a paradigmatic case of affect-laden qualities being composed to serve human experience. Education in the arts is the education of feelingful thought at its most acute level.[16]

But even those arenas of activity that seemingly are without affect are, in fact, freighted with affect. To be kissed without feeling is to know that one has been kissed without feeling because of the feeling that unfeeling kisses reveal. Experience always has an affective aspect, and the so-called absence of affect is itself an affect. The development of intelligence in all areas of human action is never complete without attention to the affective part of the materials with which we compose, regardless of the domain in which we function. The practice of a science at its best is an art that depends upon the affective experience of the scientist in the context of doing his or her research. The absence of attention to such matters in our own teaching is a form of fundamental neglect, for it robs our students of the opportunity to secure the satisfactions of genuine work.

DIMENSIONS OF SCHOOL REFORM

What are we to make of this formidable list of questionable assumptions upon which our schools operate? Is it to be merely a taxonomy of erroneous beliefs, or is there some way to think about these assumptions in relation to dimensions of school reform? I believe there is a way to connect this analysis to school reform. Consider the following five dimensions.

First, I believe it would be well for us to think about school reform in relation to the aims of our schools. What really matters? Do we harbor contradictory aspirations? What are our priorities?

Why do we have them? Such questions provide a beginning for deep examination.

Second, we can examine our assumptions about the conduct of schools in relation to the structure of schooling. By structure I mean the ways in which time and space are parsed, how roles are defined within the school, how, for example, we organize classes and what it does to the way we treat time. Such questions can be grouped under structural features that need attention.

A third dimension pertains to the curriculum itself. We make assumptions about the centrality of the disciplines, about the autonomy of subjects, and about the emphasis on language as the virtually exclusive carrier of meaning. These assumptions may interfere with more creative views of how curricula can be selected and organized and, most important, how they are encountered by students.

A fourth dimension pertains to pedagogy. We appear to work with the assumptions that teachers should work alone, that 30 or more children should be assigned to a teacher, and that students should remain with a teacher for a year and then move on to another teacher. Assumptions about pedagogy need to be examined critically, for it is their practical translation in the classroom that determines significantly what students will or will not have an opportunity to learn. At the same time, though, the context in which the teacher functions—both in the classroom and as a part of the school organization—also influences pedagogical practice. We need to think about the environment as a whole.

Fifth, we need to examine our assumptions about evaluation practices. All too often we tend to equate evaluation with testing. But tests are only a mechanism, a procedure, a way through which information about how students are doing can be secured. But it is not necessary either to test or to measure in order to evaluate. Assumptions about evaluation need to be examined because evaluation practices influence the priorities of schools and affect the kinds of incentives that both teachers and students come

to believe are important in "doing school." Thus we have a scheme in which aims, structure, curriculum, pedagogy, and evaluation become five major dimensions for thinking about school reform. The dozen questionable assumptions that I have addressed here are all candidates for attention within one or more of these dimensions.

Given the questionable assumptions I have identified and the conceptual structure I have described, how shall we think about the practice of reform? There are two salient models of reform, one systemic and the other incremental. Systemic approaches to reform emphasize the need to pay attention to virtually everything, since everything affects everything else. Incremental approaches recognize that we can't pay attention to everything and that, even if we could, it is unlikely that everything could be addressed at the same time. To the extent that factors that one cannot change influence what is to be changed, the problem of reform is enormous.

Schools have demonstrated themselves to be robust institutions, something like giant gyroscopes that, when pushed to the side, accommodate the push and then come back to their upright position. Although "tinkering toward utopia," as my colleagues have put it, may not be ideal, it may be the most realistic approach.[17] What can we actually do? I believe it is possible to think big but start small. I believe that a comprehensive plan can be drafted and that undertakings incremental efforts toward the realization of such a plan are the most realistic option.

With a plan that addresses the problematic assumptions that I have described and with procedures developed for dealing with them, progress toward creating schools that genuinely educate is a real possibility. In so many efforts at school reform, superficial factors are addressed. As a result, the "reforms" are short-lived and lead to no real reform at all. This is not the picture I have tried to paint. I am trying to penetrate the surface and identify our deep-seated assumptions. By problematizing questionable assumptions, we may put ourselves in a position to create a better vision of what schools might become.
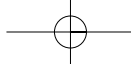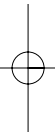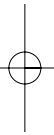
Discussion Questions

Based on your experiences, which of Eisner's assumptions about schools seem most valid? Which least?

Looking at the five dimensions of school reform suggested, how would you change school curriculum?

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