

# Questionable Assumptions About Schooling

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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.”<sup>1</sup> 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. I want to look at 12 questionable assumptions about the aims, content, and structure of schooling. I hope to problematize what seems to be taken for granted, especially by those who shape education policy.

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

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<sup>1</sup>“Questionable Assumptions About Schooling” by Elliot Eisner in *Phi Delta Kappan* 84 (9): 648-657. Copyright © 2003. Used with permission of the author.

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 own strengths and so to give to one another and to society precisely those gifts that others cannot give. What we have in the model of education that I am talking about is a model of complementarity, a synergistic model, a model that pursues the development of what is productive, yet idiosyncratic.

*2. A teacher should work with 30 youngsters for an academic year, and then students should move 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 nine 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 two- or three-year period. Elementary school teachers, like professors, develop a repertoire of skills and acquire a body of content knowledge that they bank upon 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 nine-month

contact. Many Waldorf schools, for example, have students remain with the same teacher for six to eight years. They also operate in many locales without a principal. Both can be done. What would our schools look like if we problematized the assumption of annual mobility? What would it mean for students? What would it mean for teachers?

*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.<sup>2</sup> 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.<sup>3</sup> This means that in the second grade, when children are approximately 7 years old, the range of reading ability is about two years. In the third grade, the range is about three years; in the fourth grade, about four 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, 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 on 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 U.S. 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 must confess that this concept of what matters educationally has not yet been used to define ways in which out-of-school data could be secured and interpreted. The challenge is enormous, and confounding information is treacherous. The longer one is out of school, the more difficult it is to explain what one is able to do as a function of school. Yet it is precisely such lasting outcomes that we ought to be most interested in producing.<sup>4</sup>

Despite these practical and empirical difficulties, we ought not to forget that what we are after is far more than high scores on standardized tests. We need to remind ourselves that the function of schools is broader and deeper and that what really counts is what people do with their lives when they can choose to do what they want to do. In fact, 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 number. 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.

During the past century such philosophers as John Dewey, Nelson Goodman, Susanne Langer, Richard Rorty, and Michael Polanyi have explored in-depth the nonlinguistic—indeed the ineffable—characteristics of particular modes of knowing. The limits of our cognitive life are not defined by the limits of our language. As Polanyi points out, “We know more than we can tell.”<sup>5</sup>

To take such an acknowledgement 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 area 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 state of affairs.<sup>6</sup> 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*.<sup>7</sup> 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 naïve 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.<sup>8</sup> 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 way 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 of curriculum was salient in the United States in the 1960s.<sup>9</sup> It was the view that Jerome Bruner advanced at a time when American 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.<sup>10</sup>

What we learned was that, although a disciplinary orientation to curriculum was conceptually appealing, it also tended to lack relevance for many students.<sup>11</sup> Each discipline addressed problems that often had little bearing on the students' lives. 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 choice about what students will attend to and the forms in which that material is presented and responded to are of critical importance. In *Cognition and Curriculum Reconsidered*, I describe these issues and offer examples of the ways in which the sensibilities can come into play in learning in the classroom.<sup>12</sup> I argue that the use of a wide variety of sensibilities provides students with opportunities to secure forms of experience, including forms of understanding that otherwise would be absent. In short, I urge readers to think outside of the box about how we select content and organize curricula for school programs. The assumption that the disciplines ought to define what and how we teach is limiting. We need to explore alternatives.

8. *School reform is most effective when competition among schools is promoted and when supervisors can mandate goals, manage teachers, monitor students, and measure student 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 U.S., 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 students' 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. As a woman once told me after I gave a lecture on educational evaluation to a group of teachers in Nebraska, everyone in the cattle-raising state knew that you can't fatten cattle by putting them on a scale. Of course, she was correct. You can't fatten cattle by putting them on a scale; you need to pay attention to their diet. Locating your position in a distribution tells you nothing about how to change the diet and what to substitute.

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, *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 critics 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.<sup>13</sup>

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.* As I indicated above, there is probably no nation that makes greater use of tests than does the United States. Tests are contrived tasks that are intended to sample behavior that will make it possible to determine what a student knows and can do. Test scores are believed to be proxies for the quality of education that students have received and for what it is that they have learned. Yet what test scores predict best are other 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 of the context of schools. Third, the use of tests leads students to focus their attention on grades or scores and thereby divest 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.<sup>14</sup>

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 assump-

tion that students learn only what they are being taught at the time.<sup>15</sup> 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, means 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.<sup>16</sup> Cognition refers to the process of becoming aware.<sup>17</sup> 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 formulation, therefore, is embodied in experience with qualities, and qualities are pervaded by human affect. Thus, the mathematician and logician, two individuals whose work seems to be unrelated to qualitative matters, are in fact dealing with relationships that, at their very

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.<sup>18</sup>

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. To think in terms of qualities, said John Dewey, is to think about relationships that are often more subtle, more delicate, and more complex than much of the thinking that goes on among those who pride themselves on being intellectuals.<sup>19</sup> 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 his 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 under which questionable assumptions can be examined 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 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 evolution 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. Evaluation is a process of making value judgments about phenomena, and most of the value judgments that we make in the course of ordinary life have nothing at all to do with tests and very little to do with measurement. They are judgments made about the quality of this or that, and we make such judgments in order to make decisions that affect our lives. 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.<sup>20</sup> What can we actually do? I believe that a comprehensive plan can be drafted and that undertaking incremental efforts toward the realization of such a plan is 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.

## NOTES

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