

## Conclusion: A New Pedagogy for Policy?

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Educational reformers now press for radical changes in American classrooms. Leaders in politics and business demand “critical thinking” and “teaching for understanding.” They insist on “world-class standards” for schools. They argue that students must become independent thinkers and enterprising problem solvers. Educators say that schools must offer intellectually challenging instruction that is deeply rooted in the academic disciplines. These proposals come from many different sources. The California State Department of Education has been urging such ideas on schools since 1985, and several other states are taking similar steps. The National Council of Teachers of Mathematics (NCTM) has launched a campaign to replace rote memorization of facts and procedures with deep understanding of mathematical ideas in all American schools. Researchers and reformers concerned with reading and writing are pressing a parallel approach in schools across the country. Several other professional associations and disciplinary groups are writing new curricula and instructional standards. Publishers have begun to climb on the bandwagon, and new tests and texts are being proposed, designed, and written.

These reform efforts differ from one another in some important ways, but they all differ vastly from most current practice. For many reformers envision an active, constructivist sort of learning and an intellectually adventurous approach to teaching. They believe that instruction should be rooted in a thorough knowledge of academic disciplines and that students should grapple with deep issues in those disciplines as a regular part of their classwork. In contrast, most teaching in U.S. classrooms is rather didactic. Teachers and students spend most of their time with lectures, or formal recitations, or worksheets, or some combination thereof. Intellectual demands generally are relaxed, and a great deal of the work strikes observers as dull. Only a modest fraction of public school teachers have deep knowledge of any academic subject.

What are the prospects for efforts to reform teaching in American schools? The question is as old as public education, though reformers rarely seem aware of it. In the 1840s Horace Mann and other advocates of more thoughtful and humane instruction proposed several of the ideas that enthrall today’s reformers and exhorted teachers to embrace them. In the 1890s John Dewey and many allies refined and expanded the ideas and launched a campaign to get teachers to adopt them. Some of the same ideas were revived or discovered anew by reformers in the Sputnik era and sent sailing toward teachers with federal financial and political support. A decade or so later some of the same ideas were again discovered and urged on teachers in the Open Education and Free School movements. Several elements in these reform programs have been broadly adopted, but only at the price of accommodation to many persistently traditional features of prior practice.<sup>1</sup> If John Dewey or Horace Mann were suddenly transported to classrooms today, they would find both startling changes and many sadly familiar practices.

One reason for such mixed and slow progress has been the great difficulty of teaching as many reformers wish—a point that generally has escaped most of those who propose it. Another reason is the great difficulty of learning to teach very differently, which also has escaped most reformers. The progress of reform also has been slowed by Americans’ chronic ambivalence about serious intellectual work. One additional reason for slow progress is that

educational policies have only occasionally and weakly promoted the sorts of teaching that reformers now propose. As we argued in Chapter Seven, policymakers have not earned high marks in pedagogy. The policies that are most simplistic intellectually have been most effective pedagogically, while the policies that are most ambitious intellectually have been least effective pedagogically.

### *New Designs for Policy*

Despite this mixed and disappointing record, policymakers now urge much more challenging instruction on schools. In what follows we explore what it might take for them to succeed. We begin with a sketch of the sort of teaching that many current reformers envision, in part to suggest some of the things that most teachers would have to learn. With that in mind we turn to how teachers might learn a new approach to instruction and how policy might promote it. We sketch some proposals for a more educational approach to educational policy, but we note that it would be very different from current arrangements. Hence we also ask whether such a novel approach could reasonably be expected to work, given politics and education as we know them. Our aim in all this is exploratory: we want to probe unfamiliar terrain, not to issue a five-point program.

One thing that is missing in most reform proposals is a sense of what the new teaching might look like and what teachers would have to know and do in order to carry it off.<sup>2</sup> Several of the chapters in this book help in this department, for they sketch a few portraits of new pedagogies.<sup>3</sup> The portraits are unusual; in them teachers try to help students to learn to think and work in something like the ways that historians, mathematicians, and scientists think and work. These teachers treat the terrain of teaching as intellectual practices, that is, as history or mathematics or science. They see instruction in history or biology as a matter of getting students to engage significant problems in these practices, rather than simply transmitting the finished knowledge. Teachers invite students to try out ideas about how to set the problems, to discuss alternative ways to solve them, to test their arguments against evidence, and the like. Rather than acting as though students were empty vessels to be

filled, teachers act as though students were active and interesting thinkers. Students must of course learn many finished products of these practices, but they do so while working as apprentice historians, mathematicians, and biologists work, rather than learning the finished products in isolation.

In order to do such work, teachers must find ways to provoke students' performance within the practices they teach. Hence they try to frame classroom tasks that are intellectually authentic yet accessible to apprentices. They try to set these tasks in ways that will stimulate students' interest and evoke lively work. They try to cultivate deep thought and rich discourse by devising appropriate activities, coaching, and conducting rather than didactically "telling knowledge" to students.<sup>4</sup> And teachers try to organize all of this so that members of the class will have access to one another's thinking.

Teaching of this sort defies many inherited ideological categories. It is not conventionally child-centered, for it is rooted in intellectual practices instead of childish activities. Yet it also is rooted in students' performance in those practices, and in their understanding of what makes a good performance. Similarly, though much teaching is done by learners in such classrooms, teaching is much more difficult than in conventional "knowledge telling." Finally, while teachers must be much more knowledgeable and active than their conventional colleagues in order to carry off such teaching, they must do so while finding ways to be much less prominent in the class's work.

When such teaching works, it greatly enriches instruction; but whether it works or not, it greatly complicates instruction. For teachers open up classroom communication to many more voices and much more independent and thoughtful speech. They revise the discourse structure of classrooms so that authority is diffused from teachers and texts to anyone who makes persuasive arguments. Students assume much larger instructional roles and responsibilities. The social organization of classrooms grows much more lively and rich, but teachers' intellectual and managerial responsibilities grow as well.

Learning and teaching as we have sketched them are much more social activities than ordinarily is the case in U.S. classrooms.

Deborah Ball writes that “. . . the GROUP is a focus of attention, even a sort of crucible for learning. Teaching in this way is not just some way to enhance each student’s thinking and knowledge. It is also about interaction and community—as both means and goal. I keep thinking of how struck visitors to my class are (especially non-academics) when they see the . . . interactions and sense of community. [One visitor] . . . recently . . . was amazed to find that the girl he was sitting next to had an explicit record of what different issues had come up and what different kids had said during the previous class. She drew on these notes to extend the conversation during the class he was observing (she wrote ‘Yesterday, T. said that  $\frac{3}{3}$  would be equal to 1 and I agree with that, but I also agree with what D. was saying. Let me try something up on the overhead?’). The kids build on one another’s work, and they are working TOGETHER . . . playing off one another and . . . mov[ing] . . . collective understandings, assumptions, agreements along.”<sup>5</sup>

To work in such ways teachers try to create classroom cultures that support disciplined inquiry. To do so they must respect and understand students’ efforts to make sense of material. That is no mean feat, since students’ ideas can be as puzzling and oblique as they are inventive and insightful. Their efforts to make sense of things sometimes parallel deep disputes and significant historical developments within fields, but they are expressed in the words and ideas of young beginners rather than experienced professionals. Teachers cannot make much sense of students’ efforts to learn unless they understand the fields and know something of their development, as well as understand how children think about particular subjects and how they develop intellectually. Uncommon as such understanding is, it is still not enough, for teachers work with little crowds in classrooms. To create classroom cultures in which disciplined inquiry thrives, teachers also must encourage students to be both tolerant and critical—to respect others’ views but also to subject those views to the intellectual discipline of historical or mathematical thought.<sup>6</sup> Teachers must cultivate students’ respect for one another’s ideas and their capacities for disciplined argument, for probing one another’s ideas, and for thoughtful listening. These qualities can be encouraged among young children, but not easily.

No one knows if the sort of teaching and learning that we

have been describing is exactly what most reformers have in mind, for the rhetoric of reform is largely a paper and pencil matter. Few reformers have spent much time in classrooms of any description, and few have written in detail about teaching or referred to specific examples of instruction in their reports, speeches, and proposals.<sup>7</sup> But the pedagogies sketched above do have much in common with recent reform rhetoric. Unlike arguments for reform, though, examples of ambitious pedagogy are quite rare, for most schoolteachers and students see instruction as a matter of giving and getting the right answers. The combination of intellectual tolerance and intellectual discipline that our colleagues have written about in this book is unusual even in college and university classrooms, where most teachers are quite knowledgeable and most students are easy to manage. American education offers few examples that suggest what might be possible, and from which teachers might learn.

But even if teachers had many examples from which to learn, they would find that teaching of this sort is very difficult. Academic work is much more complex and demanding when students try to make sense of biology or literature than when they simply memorize the frog’s anatomy or the sentence’s structure. Teachers need to know a great deal to understand and appreciate students’ ideas, and they must be able to manage complex social interactions about the ideas. Still another reason such teaching is rare is that it is uncertain. Instruction is much less predictable when students discuss and debate their interpretations of a story, or their conception of vertebrate anatomy, than when they memorize facts in isolated silence at their desks and disgorge them in recitation. Teachers must cope with much greater uncertainty when students present ideas that are difficult to understand, when they offer unpredictable insights in discussions, and when they get into complicated disagreements. It is unsettling to confront such uncertainties and difficult to manage them without closing down discussion. Much modern social and psychological research converges on the notion that the mind typically deals with uncertainty by reducing or eliminating it.<sup>8</sup> If so, teaching of the sort that we discuss here cuts across the grain of some deep psychic dispositions or cognitive structures.

Another reason that teaching of this sort is rare is that it is risky. When teachers construct classroom work so that it turns on

extensive student participation, they enhance their dependence on students. Teachers are the professionals in charge, but if students do not do the work, have good ideas, and engage in lively discussions, the class will fall flat and the teacher will have failed publicly. Teachers who try to work in the ways we have sketched must manage greater vulnerability to students than if they taught in a more closed and traditional manner.<sup>9</sup>

The teaching that reformers seem to envision thus would require vast changes in what most teachers know and believe. Teachers would have to revise their conception of learning, to treat it as an active process of constructing ideas rather than a passive process of absorbing information. They would have to rediscover knowledge as something that is constructed and contested rather than handed down by authorities.<sup>10</sup> They would have to see that learning sometimes flourishes better in groups than alone at one's desk with a worksheet. And in order to learn, teachers would have to unlearn much deeply held knowledge and many fond beliefs. Such learning and unlearning would require a revolution in thought, and scholars in several fields have shown that such revolutions are very difficult to foment.<sup>11</sup> Moreover, once teachers' academic knowledge and conceptions of learning changed, they would have to learn how to teach differently.

The reform of teaching therefore would entail an extraordinary agenda for teachers' learning. We wonder if it could be accomplished, and if it could, by what means. Several of our colleagues in this book doubt that teachers would learn a new pedagogy from conventional teacher education, and they suggest some elements of an alternative. One is that teachers would have extended opportunities to "practice" in ways that enabled them to gradually contrive a very different pedagogy, rather than the usual quick-hit "inservice" workshops.<sup>12</sup> Another is that thoughtful colleagues would observe teachers' work, report on it, and make the observations part of a sustained conversation about teaching and learning to teach. Teachers then would have opportunities to see their teaching from other perspectives, perhaps would learn how to adopt such perspectives themselves, and thus would become more reflective about their work. Another element still is that teachers would have

opportunities to reflect on the content of the conversations, to try out revisions in their work, and to weigh the results.

These ideas imply another: as they learned a new pedagogy, teachers would profit from working in protected situations. Protection would be useful in part because teachers would have so much to learn and unlearn. Unlearning is a difficult and little-explored feature of learning that would be especially troublesome in this case, for teachers would have to become novices after many years of thinking they had been accomplished professionals. They would have to cast aside much that they had known and done confidently, yet they would still have to carry on as professionals in their classrooms. Protection also would be useful because teachers would be learning to work in ways that were much more uncertain, and that made them quite vulnerable. Teachers also would profit from protection against the many mistakes they would make as they abandoned old practices and acquired new ones. There is, after all, the possibility that their novice efforts would impede students' learning, or would become unduly painful, or would damage them professionally. Many arrangements could afford some such protection, including special schools, classes, institutes, support groups, and networks for professional development. But one key feature of any such arrangement would be work with more accomplished professionals in relationships that combined trust and critical reflection.<sup>13</sup> Finally, teachers would profit from protection against the typically frantic press for reform-in-a-minute, so that their time to learn would be commensurate with the scale and scope of the learning.<sup>14</sup>

How could policy promote this unusual agenda for teachers' learning? The simplest course of action for policymakers would be to declare the matter an important priority, set goals or standards, and turn operations over to colleges, universities, and other agencies that educate teachers. But those institutions have little capacity to support the sorts of teaching or teacher learning described here. To begin with, inadequate preparation still is no barrier to becoming a teacher. Most colleges and universities grant degrees to intending elementary teachers despite their thin knowledge of the subjects they will teach, and they grant degrees to intending secondary teachers despite their thin knowledge of pedagogy and learning. School systems readily hire those teachers. In a sense the schools

have little choice, for undergraduates who declare an intention to teach elementary school cannot major in an academic subject in most institutions of higher education; they must instead major in teaching, learning, and other aspects of education. In contrast, those who declare an intention to teach secondary school must major in an academic subject, and study learning and pedagogy only quite superficially. But the schools have made few efforts to change things. Many state and local school systems make it exceedingly difficult for applicants to get elementary school teaching jobs if they have majored in an academic subject rather than elementary education, and they offer no incentives for secondary teachers to acquire strong pedagogical preparation. One would think that universities could easily repair the situation by opening academic majors to intending elementary school teachers so they could more adequately study the subjects they will teach and by requiring much deeper study of pedagogy and learning for intending secondary school teachers. But those seemingly simple steps would be very difficult. Efforts to replace the elementary education major with academic fields, or to create joint majors, have been resisted by disciplinarians as well as by educationists, as have efforts to deepen the education of intending secondary school teachers by including more attention to learning and pedagogy.<sup>15</sup>

Even if these problems of curriculum and course offerings were miraculously solved tomorrow, teachers still would find it very difficult to learn the pedagogy that recent reformers propose. One reason is that few college and university professors teach that way. Most intending teachers get most of their undergraduate education in departments of humanities, science, and social sciences. Even those who major in elementary education do two-thirds or three-quarters of their studies in such departments, and instruction there generally is as traditional and didactic as most schoolteaching. Professors know their subjects much more deeply than most schoolteachers, but more sophisticated teaching does not follow necessarily or even frequently from greater academic knowledge.<sup>16</sup> Another reason it would be very difficult for teachers to learn the pedagogy that recent reformers propose is that most teachers are educated at public universities and colleges in which large classes, multiple-choice tests, and little student contact with faculty are the

order of the day. Like most other undergraduates, intending teachers' education often is in the hands of graduate students who are beginners in their subjects, inexperienced at teaching, and unwilling or unable to invest much in learning to teach well. Still another reason it would be very difficult for teachers to learn the pedagogy that recent reformers propose is that most academic departments would neither permit intending elementary school teachers to take the regular sequence of disciplinary courses for majors, nor offer an alternative sequence of intellectually sound courses for those who wished to major but did not intend graduate work in the field. It also would be very difficult for teachers to learn the pedagogy that recent reformers propose, because most education schools and departments could not now offer professionally sound and intellectually defensible studies in pedagogy and learning in academic subjects for teachers at any level. Much of what these schools and departments currently offer is notoriously thin, and little of it is deeply grounded in knowledge of academic subjects.<sup>17</sup> Hence even if colleges and universities did greatly increase intending teachers' opportunities to study academic subjects, learning, and pedagogy, that would be unlikely to produce the teaching that reformers now envision.

To reform schoolteaching by revising college and university instruction would entail much more than revamping undergraduate curricula and course requirements. Great changes in the culture and educational priorities of higher-education institutions also would be required. Few members of the academy exhibit any taste for such work, and signs of inducements that could alter their inclinations are scarce. Recent efforts to reform teacher education have been launched with much fanfare, but they have made only a little progress at best. Moreover, many institutions of higher education have been in a serious revenue squeeze for years, and it is getting worse. The likelihood that colleges and universities will take up major reforms of curriculum and instruction diminishes as money grows shorter, administrative discretion is reduced, and faculty positions are lost. If state and federal policymakers relied on higher education to fundamentally revise instruction in the public schools, they would almost certainly be disappointed.

Reformers could instead turn to continuing professional ed-

ucation, in hope of reeducating teachers while they are at work. But while state and local school systems and universities spend heavily for such education every year, most of it has a dismal reputation. Various professional agencies sponsor a blizzard of workshops, but most are short, simple, and superficial. Universities and colleges also offer much continuing professional education, but most of that is commonly regarded as either irrelevant or thin. Challenging content is almost as rare as the continuing professional contact that can sustain new ideas and practices in classrooms. Some professors and professional development agencies do a better job, but they tend to be few in number and to have modest capacity. Many subsist on external grants from one year to the next, and regularly must change their agendas to accommodate shifting governmental and philanthropic fashions. Few work with teachers for the time or with the intensity that would be required to make and sustain basic change in practice.

Schools also offer extensive continuing education, and policymakers might hope to turn it toward reform. But most of the schools' education for teachers is reported to be a pabulum of brief, superficial, and unconnected workshops. They are rarely inspired by a larger vision of instruction, nor are they tied to deeper issues in curriculum, assessment, or learning. Additionally, few schools offer teachers extended or well-designed opportunities to learn on the job, nor do they create powerful inducements for it.<sup>18</sup> Thoughtful observers argue that schools would become places for teachers to learn only if there were major changes in the institutional culture, in teachers' conceptions of their work, and perhaps in their jobs as well.<sup>19</sup> Such changes would take a great deal of time and energy in any circumstances, but they would be especially demanding when educators were struggling with shrinking budgets and rising social problems, as they do today.

If our analysis is roughly correct, policymakers would not dramatically change pedagogy by simply passing that assignment to the existing agencies of teacher education, for those agencies have neither the capacity to carry most of the educational load themselves nor the disposition to build that capacity. Policymakers and analysts committed to reform, therefore, would have to find other ways to enable teachers to learn. Schools, universities, and professional

development agencies would almost surely play an important part in any such effort, but simple delegation is not indicated.

What might policymakers do instead? They could make policy itself much more educational for educators. Educational policy continues to grow: reformers in and out of government are devising more demanding standards, designing more challenging assessments, writing more thoughtful instructional frameworks, and developing more intelligent curricula. Each of these endeavors increases the things that teachers would have to learn if they were to succeed, but few are well enough designed to promote such learning. To make such policies much more educational for educators, the processes in which policy is made and enacted would have to be opened up so that they created many more opportunities to learn. And those opportunities would have to be designed so that they embodied the sorts of teaching and learning that reformers wish to promote for classrooms.<sup>20</sup>

This approach would give an entirely new meaning to the term "educational policy." The idea has a certain appeal; if policymakers want to promote reform, should they not organize policy so that teachers could learn what they needed to know in order to succeed? But Americans have little experience with endeavors of this sort, and we know little about what may be entailed. To probe those entailments, we consider a few examples of how educational policy could become more educational for those who enact it.

Take the case of creating a new instructional framework in any academic subject. Framework design opens up fundamental questions about the nature and purposes of instruction, and thus presents many educational opportunities. Perhaps the most direct way to make framework design more educational for educators would be to create an accompanying design for learning—in effect, a curriculum of framework creation. If such a curriculum were tightly tied to framework development, the very act of constructing new instructional goals and standards would be embedded in an educational scheme. The formation of instructional policy would become a simultaneous venture in adult education. But a curriculum of framework design also could be more loosely tied to actual framework construction. Educators could be engaged in learning activities that simulated or paralleled framework construction, but

on a separate track. In this case the formation of instructional policy would be accompanied at a distance by related educational endeavors. A given venture in framework design could, of course, have some tight and some loose links to a curriculum for learning from the activity.

However these links were set, the aim would be to undertake framework design so that it also presented a rich set of occasions for educators to learn. One key element in any such curriculum would be strategies to help educators think about the scope and structure of instructional frameworks. Such things are largely unknown to Americans, and it would be important to cultivate familiarity with a new approach to instructional purposes and content. Reading and analyzing frameworks from other nations and the few U.S. states that have them would be one fruitful way to begin. In that connection the curriculum also could invite teachers to draft, justify, and criticize their own framework proposals, or to comment on draft proposals for state or national frameworks. An important part of such work would include helping teachers to identify themes for a proposed framework, to consider relations among themes, to analyze the advantages and disadvantages of particular themes, and to cultivate ways to discuss these matters. None of this could be done well without knowledge of the disciplinary fields involved, and given the state of most teachers' knowledge, any such curriculum would have to offer ways for many of them to learn much more. A curriculum could, for example, suggest how teachers could develop the themes that they proposed by identifying and investigating sample topics within one, and planning a few lessons. Such activities would offer a way of learning more about the content of a field and teaching and learning in it, as well as about what remained to be learned.

Another crucial element in any curriculum of framework design would be the identification of materials. Teachers could read books, original sources, experiments, and the like and discuss their suitability. Such work would be an extraordinary opportunity to learn about the intellectual terrain of a field, about the various approaches to mapping it, and about the many different ways in which a single set of instructional goals could be realized in classrooms. A curriculum of this sort also could invite teachers to imag-

ine how they might deal with a particular theme in a series of lessons. Teachers could teach the lessons to colleagues, and, in light of that experience, discuss how they could revise readings, lesson formats, and even framework designs. A proper curriculum would suggest ways to go about such work, including guides to help teachers in scrutinizing the instructional properties of materials, advice about how to weigh their value for teaching and learning, assistance in developing and teaching sample lessons, and guidance in the revision of frameworks in light of discussions and classroom trials.

The same sort of curriculum could be created for the design of new assessments, for, like framework construction, assessment raises fundamental questions: what has been learned? What should be? How is learning best investigated? Here again, the key point would be to frame reform as a set of educational opportunities. One key element in any such curriculum would be guidance in writing blueprints for new assessment, including examples from other school systems, suggested ways to compare blueprints, and exercises that help educators and interested officials or members of the public to learn something of the genre. A curriculum of assessment design could also suggest ways in which teachers might draft blueprints, or comment on drafts already circulating in their state or region. In that connection a curriculum also could suggest ways to use the drafts and comments as a basis for investigating the strengths and weaknesses of proposed blueprints—that is, comparing them to extant assessments and instructional frameworks, exchanging analyses, inviting comments from assessment specialists, and the like.

All of this would in a sense be preliminary to creating assessments. A curriculum of assessment design could offer teachers guidance in the definition of domains, in the composition of questions and other assessment tasks, and in developing rubrics for evaluating answers. It could suggest how teachers might analyze the quality of the questions they wrote and improve on them. Such a curriculum also could organize ways in which teachers could study the topics that they wrote questions about, as they wrote and discussed the questions. That sort of work would both deepen teachers' knowledge of the matters assessed and improve their understanding of the strengths and limitations of assessment within specific subject mat-

ter fields. Finally, with work of this sort en route, a curriculum of assessment design could help to guide teachers' study of the relations among assessment, frameworks, and curricula.

One notion behind these ideas is that the education of educators could flower if it were tied to certain crucial practical tasks that also were intellectually fundamental.<sup>21</sup> The short list of such tasks certainly would include much of the program of the current reform movement: devising new academic standards, designing new assessments, writing new instructional frameworks, and developing new curricula. In that sense the present moment in American education offers unparalleled educational opportunities. While it would be no mean feat to develop curricula for reform that could realize those opportunities, if it were done well, many teachers could gain enormously. Since framework and assessment revision would be continuing tasks in any vital educational system, teachers would be able to contribute to reform and learn from it on a continuing basis. Several states have edged a bit in these directions recently, as they have begun to devise new frameworks and revamp curriculum and testing;<sup>22</sup> but state officials have neither envisioned nor designed such work as a major project in the education of educators. That is not surprising, for the agenda that we have outlined could hardly be done well in the ways that most education agencies now approach continuing professional education—that is, in a few stolen hours after school, on weekends, or in isolated bursts of summer activity.

What would this sort of scheme entail for policy? Most generally, policy would be reconceived as an educational endeavor, and many opportunities to learn would be designed into policymaking processes. Such work would take extraordinary imagination as well as instructional design capacities that now barely exist either in government or in public education. Yet those changes would be for naught if teachers did not capitalize on them, and most teachers already are quite busy, and few have any sense that the sorts of activities that we have sketched should be part of their assignments.<sup>23</sup> Hence teachers' work, or their ideas about their work, also would have to be substantially revised. Additionally, teachers could not do it alone. An educational approach to educational policy also would require learning and teaching on a broader scale, including

specialists in assessment, experts in pedagogy, and subject matter specialists from universities and other agencies. They would have much to contribute as teachers and much to learn as participants in a novel sort of educational policy. None of these things would be likely to occur without other changes: in the way teachers' work was understood and treated by administrators, politicians, and the public, in the mobilization of potent inducements to learn, in the provision of money and other resources to support learning, and hence in the quality of political and educational leadership.

But we are getting ahead of our story. Consider one more example of the approach we have discussed—the development of new curricula for students. Curriculum could be one of the most intimate connections between policymakers and classroom practitioners, for curriculum standards and materials play a large role in the work that teachers and students do together every day. The recent reform movement has produced a small avalanche of proposals to revise that work by fundamentally changing the substance and structure of academic subjects. The projects include those of NCTM, Project 2061, several in the National Academy of Sciences, several others in state governments, as well as others. Like the 1950s curriculum reforms, though, these endeavors often are discussed and carried out as though their authors were unaware of the enormous agenda for educators' learning that they entail.

It is not difficult to envision an alternative: reformers could design new curricula for students so that they were deeply educational for teachers. For example, an innovative unit on fractions for fourth graders could be accompanied by a teachers' fractions curriculum. The teachers' curriculum could offer an array of approaches to teaching and learning fractions and weave discussion of the mathematical ideas into those approaches. The curriculum also could discuss different ways to present each topic and analyze the strengths and limitations of various presentations. Each alternative could include examples of how to frame the mathematics, reports on the sorts of things that students said and did when material was presented to them in that way, and discussion of the mathematical content both of the material presented and students' responses. Such a curriculum also could discuss the ways in which teachers could interpret students' responses and how they could probe students'

ideas to get a better idea of their thinking. In these ways and others, a teachers' fractions curriculum could offer teachers extended discussion of mathematics in the context of considering various ways to teach and learn mathematics. It could be accompanied by additional reading or other supporting material on the mathematical content of fractions, on how students think about this domain of mathematics, and on how accomplished teachers have handled both the material and students' responses to it.

We have not proposed a teacher's guide or classroom scripts. This sort of curriculum would be pointless if it did not influence teaching, but it would be equally pointless if it were mechanically conceived or executed. Our intention is to tie a program for teachers' learning to improved curriculum for students. The teachers' curriculum would be focused on mathematical pedagogy, that is, on the interactions among mathematics, representations of mathematical ideas, teaching, and learning. It could be organized around instructional issues that teachers would face every day as they sought to use the new curriculum with students. Our reasoning in this is straightforward. If recent efforts to reform education do entail the extraordinary learning for teachers that we suggest, new policies could not work unless ways were found to enable that learning. Since most teachers would have to continue to teach even as they learned to teach differently, much of that learning should be situated in or near classrooms. The curricula that teachers and students use every day would be one such situation.<sup>24</sup>

Curricula of this sort would substantially increase teachers' chances to learn the things that recent instructional policies entail, but they would not be easy to create. Curriculum design and publishing would have to be sharply reoriented so that they attended as much to teachers' as to students' learning. Teachers also would need opportunities to learn from the new curricula that were similar to the learning that reformers intend for students, for few American adults have experienced such learning, and teachers could hardly be expected to competently guide students through intricate processes of which they were ignorant. In addition to a new approach to curriculum design for teachers, such curricula also would require that teachers have time to read the new materials, chances to discuss them, helpful and knowledgeable people with whom to discuss

them, opportunities to try out new approaches in their classes or elsewhere, and assistance in such tryouts. Changes of these sorts would add greatly to the time and other resources required to design and enact new curricula. They could not occur without thoughtful action by policymakers, publishers, schools, colleges, and universities, and a variety of professional and disciplinary organizations.<sup>25</sup>

These examples throw a little more light on what it may take to weave a suitable education for educators into educational policy. Policymakers would have to create opportunities for teachers to learn practices such as history or biology by engaging in them, conversing about them, articulating ideas, testing them against evidence, and the like. Rather than acting as though teachers were empty vessels to be filled, policymakers would act as though teachers were active and interesting thinkers and central in policy-making. Teachers would have the sort of opportunities to learn that reformers think students should have. Doing these things would not be easy, since few policymakers and managers ever learned that way in school, let alone taught others. We wonder where policymakers could learn. But assume they did, somehow. Rather than considering teachers as the "implementers" of policy, they would treat teachers and administrators as though they were intelligent commentators on policy and significant participants in creating and revising it. Policymakers and managers would eschew more familiar and didactic roles in which they "tell knowledge" to educators, and instead would engage them as active, learning collaborators.

Analysts are familiar with several criteria for effective policy, including political feasibility, leadership, appeal to important constituencies, and the like. Our proposal adds another: educational policy should be deeply educational for those who enact it. That criterion would not be easy to satisfy. Simply to design the sorts of opportunities to learn from policy that we have sketched would be difficult, time-consuming, and costly. To actually integrate teachers' learning into policymaking would be vastly more so. Revising extant conceptions of teachers' work and its organization would further add to the costs and complications.

Moreover, thus far we have focused chiefly on what an educational approach to educational policy would entail for teachers. But such curricula as we have sketched also would complicate pol-

icy formation and enactment. Efforts to incorporate pedagogy as well as politics and finance would greatly complicate policymaking. Additionally, if learning from policy became crucial, policymakers would have to attend closely to what teachers and other educators understood. That would greatly complicate what analysts have called implementation; the activity itself might have to be reconceived as reinventing policy.<sup>26</sup> Finally, if they did carefully attend to teachers, policymakers' uncertainty and dependence on teachers would increase. For discourse about policy would open up, much as classroom discourse opens up in adventurous teaching. New voices would be drawn into policymaking, and other voices long silent or ignored would be raised. Teachers' role in producing policy would be more plainly recognized and enhanced, but that could crowd policymakers in unfamiliar and often uncomfortable ways. As in innovative classrooms, such measures could improve understanding, but they would increase debate and division. One expects that results would improve in the long run, but one knows that difficulties would increase in the meantime.

### Conclusion

Though we have only sketched the outline of a new pedagogy for policy, it conjures up a cloud of questions. One particularly stands out: could state and national agencies actually devise and enact such "educational policies" as we have discussed?

It is not difficult to imagine a policy agenda—we already have sketched some of it. Policies and programs intended to reform instructional standards and assessment would have to be greatly expanded in order to enhance their educative power. Curriculum reform would have to be redefined and broadened to help teachers learn to teach in unfamiliar and demanding ways. New policies and programs might be required so that higher education institutions could offer teachers extensive help in such learning. Agencies of continuing professional education surely would have to be expanded, reoriented, and strengthened. Schools' organization and professional culture also would have to change to strongly support teachers' learning. That would not be easy, for while policymakers could relatively easily "restructure" schools to offer teachers more

time, autonomy, power, and the like, such things often come to little by themselves. As Sarah McCarthy and Penelope Peterson argue in Chapter Five, when restructuring is unaccompanied by extensive opportunities for teachers to learn, the results are unimpressive.<sup>27</sup> And Joan Talbert and Milbrey McLaughlin point out in Chapter One that professional and institutional cultures are much more potent influences on teaching than most structural arrangements in education.<sup>28</sup> Hence policymakers could find themselves searching for ways to tie change in schools' organization to changes in their culture and educational opportunities for teachers.

One way to make that connection would be to make learning count much more heavily than it now does for teachers. At the moment university course credits count for advanced degrees, and often for salaries as well. But those incentives have not produced many fine courses, nor do they seem to have appreciably advanced teachers' knowledge of pedagogy or academic subjects. As things now stand, serious learning only counts professionally for teachers if they individually choose to make it count. Many teachers are eager to learn, but they are most interested in learning about specific practices that will help them today and tomorrow. They exhibit much less interest either in learning deeply about academic subjects or in learning how to dramatically change their teaching. Yet the current reforms would not take deep root unless teachers were strongly motivated to learn just such things, and to make their teaching much more difficult in the process. Policymakers could decide that they should devise potent incentives for teachers to learn such things and to continue to learn through many difficulties.<sup>29</sup>

Were government to undertake such an agenda, educational policy would greatly expand. State or federal agencies would set dramatically new and higher standards, devise new curricula, create new assessments, build vastly greater capacity for teacher education, and more. As policymaking became more ambitious and complex, government would grow.

Yet the reform agenda that we sketched would not succeed unless educational policymaking also was drastically reduced.<sup>30</sup> A clearer focus on ambitious teaching and learning would require that the accumulated clutter of competing and overlapping programs and policies be cut back and cleaned up. Lacking such ac-

tion, reforms would only add to conflict and ambiguity in instructional guidance.<sup>31</sup> But such cutbacks would require painful merger or discontinuation of many state and federal initiatives, and of the administrative units tied to them. If they focused on a smaller and more coherent agenda of fundamental change, policymakers also would have to alter many of their present habits—for example, embrace much longer time horizons for policy development and enactment, as well as evaluation. They also would have to abandon their continuing intervention in schools and the associated shifts of direction every few years. That would entail new relationships with local schools in which much stronger guidance for content, standards, and results was mixed with much broader support and much less interference in other areas.

This would be a curious combination: dramatic expansion of government in certain respects and equally dramatically contraction in others. The combination would be difficult in any political system, but it would be especially troublesome in the United States. One reason is the power of short-term incentives. Elected officials crave programs or policies that are identified with their name and for which they can claim quick credit with constituents. Would state, local, and federal policymakers willingly renounce the political benefits of short-term tinkering with schools? We cannot imagine why, short of a major crisis or an extraordinarily powerful reform movement. Another source of trouble would be the interest groups that have grown up around existing policies and programs. It would be unprecedented for them to give up concrete and immediate political benefits in favor of more abstract and distant reform schemes.

Efforts to simultaneously shrink and expand education policy also would require extensive coordination among governments within America's fragmented political system. Only a few federal agencies are concerned with schools, and there are fifty state governments—a modest number as U.S. politics goes. But each of those governments is divided into executive and legislative branches, which have deeply different responsibilities for education and whose incumbents regularly differ about educational policy. The work of both branches also is subject to review by state and federal judiciaries, which have been increasingly active in education and

quite willing to overturn the decisions of legislators and governors. There also are more than fifteen thousand autonomous local school governments, and an even larger number of county and municipal governments whose actions bear on local schools through finance and other means. If the reforms sketched above were national or regional in scope, they would require unprecedented coordination among many of these governments. Hundreds or thousands of school agencies at all levels would have to agree on new educational purposes and on new instructional guidance arrangements to achieve those purposes. They also would have to acquiesce in roughly identical reductions of their authority in order to clean up the existing clutter of programs and policies. Yet those same battalions of governments would have to accept an extraordinary expansion in the power both of the state or federal agencies that would guide instruction and of the local schools that would enact a new education. We can imagine such unprecedented intergovernmental coordination, but not without also imagining some extraordinary educational crisis or powerful movement for reform that would compel action.

Political fragmentation would pose one additional problem. A more educational approach to educational policy would require close connections between policy and practice, but the design of American government frustrates such connections. For example, devising and enacting the curricula of framework reform that we sketched earlier would entail close and sustained work among state or federal policymakers, publishers, university faculty, schoolteachers, and administrators, among others. Lacking such collaboration, educators would have few opportunities to learn from new instructional frameworks, and developers and policymakers could not learn from educators' efforts to use the frameworks. Yet making and sustaining such connections would be very difficult, for American government was designed to frustrate such things. Authority in education was divided among state, local, and federal governments in an elaborate federal system, and it was divided within governments by the separation of powers. These divisions were specifically calculated to limit the powers of each branch of government and to inhibit coordinated action across governments. They gained force from the country's great size and diversity. Close rela-

tions between policy and practice are difficult to sustain even in much smaller and more coherent systems, but the vast sprawl of internally divided and jurisdictionally distinct state, federal, and local governments has made them nearly impossible to arrange in America.<sup>32</sup> Great gulfs separate state and national policymaking from classroom practice in the United States,<sup>33</sup> and building the infrastructure to span those gulfs would not be easy.

The reforms that we have been discussing would require a paradoxical mixture of political activism and restraint. Government officials would have to make the sort of extraordinary investments in their spheres that adventurous teaching requires from teachers and students. These would include a great expansion of government action and associated outlays of energy, time, money, and effort, but they also would include much less government action in many areas of education, an entirely different way of relating to those who enact policy, and much longer political and educational time horizons. Those who made and managed policy would work harder, face much greater uncertainty, and take many more risks, in return for many fewer short-term political rewards.

One could therefore conclude that the generally weak pedagogies of policy described in Chapter Seven make sense. The fragmented structure of U.S. government and our old diffidence about intellectually demanding education may mean that policymakers should ignore proposals for intellectually more demanding education and for a more educational approach to educational policy. There is, after all, a relatively good fit between recent emphasis on "basics" and traditional pedagogy. There also is a good fit between basics and what the adult population knows about academic work and believes about school. But there is a great difference between traditional pedagogy and the recent reform proposals. Conversely, there is a great gulf between reformers' conceptions of knowledge and instruction and what most adult Americans know and believe about school. The recent reforms would provoke terrific tensions with inherited knowledge and beliefs, and they would demand extraordinary change and learning from most American grown-ups. There are a few signs of a few of these changes, but only a few.<sup>34</sup> We wonder if American governments are well suited to lead the

struggle for reform, given the great changes that would be required and the political tensions that would have to be endured.

To share this doubt is not to think that reform is lost. One may only conclude that American governments are presently an unsuitable vehicle for fundamental change in teaching and learning. If so, reformers would need to invent ways to improve instruction in state-sponsored schools without requiring state agencies to bear the chief burden of change. For example, reformers could create nongovernmental agencies with broad charters to improve public education by various "systemic" approaches to reform. The National Board for Professional Teaching Standards is one current case in point, though its charter is restricted to teacher certification. Agencies of this sort could develop the linked instructional frameworks, curricula, and examination systems that many reformers now advocate. The New Standards Project presently has something of that sort under way in several states. Such agencies also could devise and implement the sort of curricula for reform that we sketched above, to create opportunities for teachers to learn in and around the development processes, something that no agency appears to be doing on a large scale. The same agencies could organize field trials that would enable systematic learning from the endeavor and consequent revision and redevelopment.

Nongovernmental agencies of this sort would of course have to work closely with some state and local school systems, or with networks dedicated to local school improvement, or with consortia of individual schools. But they would do that work while keeping sponsorship and development of new approaches to instruction at a healthy distance from government. Given the weak pedagogical record of education governments, building the capacities for instructional change might better be undertaken by agencies that stand outside the official policy apparatus. Whatever their enthusiasm today, precedent suggests that policymakers would be likely to corrupt and distract ambitious instructional reforms tomorrow, rather than support and sustain them. If schooling did change, government might adopt the new system, but in the charged atmosphere of U.S. politics even that could be troublesome. The development work also would have to be scheduled so that it made room for the extraordinary learning that successful enactment would en-

tail. Patience and persistence are not virtues of domestic politics in the United States, and they have been especially unfamiliar in education. Keeping the development work largely outside public political management might protect it from the fickleness of American politics well enough for a new system of instruction to mature. But that would require large infusions of private funds and great managerial tact and skill. It also would be unlikely to succeed without at least modest support from state and federal governments and enthusiastic participation by many schools and school systems.

Nongovernmental agencies would not eliminate the problems of public sponsorship. They would only permit reformers to struggle with those problems from a different and possibly improved vantage point. And even if reformers did well on that score, everything else would remain. The stuff of reform itself would have to be developed—new instructional frameworks, curricula, and examination systems and the links among them. It also would remain to revise schools, teaching, and the incentives that surround schooling, so that much more ambitious approaches to instruction made sense for those working in and around schools. And it would remain to create a new pedagogy of reform, so that teachers and others had ample opportunities to learn, in and around the processes of development and change. Whatever their sponsorship, new pedagogies are unlikely to mature in classrooms unless they also ripen in reform itself.

#### Notes

1. Cohen, 1989; Cohen & Grant, in press; and Cuban, 1984.
2. Elmore & McLaughlin (1988) frame the problem of changing teacher practice as one of teachers' willingness to learn and their opportunities to learn.
3. Chapters Two, Three, and Four of this book.
4. Duffy & Roehler, 1986; Lampert, 1988a; Newmann, 1988; Sizer, 1984; and Scardamalia, Bereiter, & Steinbach, 1984.
5. Deborah Ball, personal communication, March 23, 1992.
6. Lampert, 1986.
7. One additional reason that we are unsure about reformers' ideas is that they are imprecise about the sorts of teaching they

wish to promote. Everyone argues for intellectually demanding teaching, but agreement often ends there. Some advocate a constructivist approach to knowledge, while others seem to hold more traditional conceptions of knowledge. Some reformers point approvingly to innovative teachers who encourage rich discourse in classrooms, while others admire instruction in nonpublic schools, where most teaching seems to be quite traditional and didactic. For relevant discussions of teaching in nonpublic schools see Powell, Farrar, & Cohen (1985) and Bryk & Lee (in press).

8. Braybrooke & Lindblom, 1963; and Simon, 1976.
9. Lampert, 1988b; Duffy & Roehler, 1986; Newmann, 1988; Cuban, 1984; Cohen, 1988; Cohen, unpublished manuscripts, March 1992.
10. For instance, mathematics is a leading area in the current reforms, but most elementary school teachers have a very modest understanding of this subject (Post, Behr, Harel, Lesh, & Taylor, 1988; Thompson, 1984). Teachers would need to learn a great deal more mathematics and they would have to shed the idea that mathematical knowledge is fixed and given, handed down by authorities in books and other sacred locations.
11. Fiske & Taylor, 1984; Guthrie, 1990; Kuhn, 1962; Lakatos & Musgrave, 1970; Markus & Zajonc, 1985; and Nisbett & Ross, 1980. Teachers' difficulties would not stem only from the intellectual problems of changing well-established ideas and practices. Teachers' efforts to become active inquirers often disturbs their personal and professional lives, as several of the earlier chapters note.
12. Chapters Two and Three of this book.
13. Chapters Two, Three, and Four of this book. The combination of support and criticism here parallels the classroom culture that adventurous teachers try to create with their students. The theme is explored in the earlier chapters just cited, where the authors describe the difficulties they encounter in trying to create a context in which students are encouraged to learn but in which they also will risk trying new ideas and com-

- menting thoughtfully on each other's ideas. Peter Elbow (1986) writes about this challenge.
14. Teachers additionally would benefit if they were protected from many of the program mandates that pervade state and federal school policy, for they often produce a compliance orientation that runs counter to the approach to instruction that teachers would be trying to learn.
  15. There are many reasons for resistance. One is structural: The undergraduate curriculum has steadily grown as new subjects or subfields were created and old ones grew. Undergraduate requirements also have grown apace, and there is less room to add courses. Many undergraduate majors therefor are now precariously close to an undeclared five-year term. Another reason for resistance is governmental: The education curriculum has grown more packed as state governments have added requirements in reading, mathematics, special education, and other areas. Still another reason is simple self-interest: Most arts and sciences departments are unwilling to give up their academic dominion over intending secondary teachers' coursework, and most education departments are unwilling to cede dominion over intending elementary teachers' coursework. Another reason still is attitudinal: Most faculty members and administrators in arts and sciences departments hold educationists in low regard and prefer not to be associated with their endeavors, while most educationists are defensive about their low standing in academia and avoid contact with those resident on the main line. A final reason for resistance is intellectual: Few educationists are deeply knowledgeable about arts and sciences disciplines, and few members of arts and sciences departments are deeply knowledgeable about pedagogy and learning. Hence few members of either group are well situated to thoughtfully discuss the issues that serious curriculum revision would entail.
  16. Boyer, 1983; Cohen, 1988; Cuban, 1984; McKeachie, Pintrich, Lin, & Smith, 1986.
  17. The academic quality of education schools and departments has greatly improved in the last three decades, but the improvements all have been in imitation of conventional mainline aca-

- ademic values. Education schools and departments have recruited more faculty members who are active researchers and who publish in academic journals. Moreover they have added faculty in the more academically respectable subfields of educational psychology, sociology, politics, and the like and have deemphasized practical work in teaching, teacher supervision, and studies of learning in classrooms. Hence these improvements did not increase, and in many cases actually reduced, the capacity of education schools and departments either to undertake thoughtful research on teaching or to offer intellectually and professionally substantial teacher education.
18. There are some counterexamples of well-designed educational activities. One is teacher work and discussion groups that are organized around deepening knowledge and improving practice in specific areas of the curriculum. The Bay Area Writing Project is one case in point. But we know of few examples in which schools have devised and supported such endeavors.
  19. Johnson, 1990; Little, 1982.
  20. Elmore & McLaughlin deal very thoughtfully with some of these issues. And Milbrey McLaughlin's studies of change in classroom organization found that change in practice occurred when teachers were actively involved in policy development and implementation—that is, in creating materials, solving problems, and interacting with one another as well as with curriculum specialists and other outside consultants around policy issues (McLaughlin, 1978). From this and other accounts of teacher collaboration in reform she concluded that success in changing practice may require an ongoing process of "mutual adaptation" (p. 340) in which teachers are treated as developers of new practices and allowed, over time, to adapt policy goals to the concrete setting of their classrooms. Here again there are some parallels between uncommon cases of policy enactment and the pedagogy of policy that we discuss.
  21. In all of these examples we sketch one possible version of a learning community that embraces a variety of associated activities: collaborative projects, frequent personal exchanges, and connections to other professional communities. Some readers will recognize John Dewey's notion of the continuum

In such educational activities, he argued, accepted distinctions dissolve, and seemingly distinct elements become part of the same practical process: the subject matter and the method of instruction, the policy and its enactment, knowing and doing. The processes themselves might be considered both as means and important goals of education reform. In these cases the means and ends would continually be reinvented (see Deborah Ball's comment on p. 244 about interaction and sense of community in her classroom as "both means and goal.") For a brief discussion of the education change process viewed as both means and goal see Sarason (1982).

22. Education officials in California, Vermont, and several other states recently did something of this sort as they revised assessments and content standards. For example, California state officials have involved some teachers in redesign of the CAP, and teachers there also have been represented on various bodies that have designed reform policies. But with a few exceptions state officials have involved only a few dozen teachers on statewide oversight committees. None of the committees have developed an extensive instructional agenda for other teachers, nor have they involved many teachers. In contrast, the New Standards Project has proposed an examination system that would incorporate many of the education elements discussed here, though the scale and depth of such education-from-reform remains to be seen.
23. These difficulties recently have impeded assessment and curriculum redesign in Vermont.
24. A curriculum of this sort could be offered in print, but it would be much better in a combination of videotape and text. It would be even more powerful in an interactive computer-video environment, especially if teachers also had the capacity for network consultation with each other and more accomplished colleagues.
25. Our discussion reveals that not only teaching but many practices that bear on schools would have to change. For example, during most of this century politicians and businessmen ignored public schools or supported only minimum programs for most students. And most leaders in education long have

been inclined to the view that most students needed basic and practical education, rather than more high-flown and demanding stuff. These tendencies were entirely representative. Though the American people have been enthusiasts for schooling, few have been keen on intellectually ambitious education. This is as true for parents as it is for political and business leaders, which suggests a large task for adult education and political persuasion. Dramatic changes in educational processes and content within schools would require changes in the expectations that parents and politicians have held for schools and students, and in a divided society like that of the United States, in which schools are locally controlled, efforts to make such changes could generate terrific conflict.

26. On that point see the essay by Wildavsky & Majone (1979).
27. For further discussion on the topic of discourse communities, see McCarthy and Peterson (Chapter Five of this book).
28. Chapter Six of this book.
29. There is no plainly best way to rearrange American education so that most teachers and other educators have strong incentives to tackle the difficult sorts of learning sketched above. One possible approach arises from school systems in Europe and Asia. In some of those nations teachers' promotion and other aspects of professional advancement are tied to assessments of their teaching performance by inspectors who conduct extended classroom observations and interviews. The inspectors are themselves experienced teachers who were judged good enough (by other inspectors) to advance to the inspectorate. If some sort of a U.S. inspectorate were established, if successful performance in the classroom were defined as recent reformers have proposed, and if inspectors were both knowledgeable judges and helpful instructors, teachers might have sound professional reasons to want to learn to teach differently. If so, they would have a useful resource in learning—the inspectorate would be a perambulating archive of craft knowledge whose assignment would be to help teachers learn. Under such an arrangement it would be in teachers' professional self-interest to draw on that archive to improve themselves and then to validate the improvement. The link between

good teaching and professional advancement would be one potent incentive to learn, and hence an engine of reform. But one problem with such an approach would be its cost, and another would be the difficulty of establishing a suitable large and expert inspectorate. Still another would be the tendency of such an arrangement to preserve any given pedagogical status quo.

Another approach, more American in flavor, would be to test teachers' knowledge and to tie money rewards and penalties to the results. One version of such tests exists today—the National Teachers Examination, a standardized test published by the Educational Testing Service. One advantage of this approach is its relatively modest cost and ease of operation. But one objection is that such tests would dramatically constrain what could be learned about teachers' knowledge. An alternative would be to condition entry to teaching and advancement within it on teacher performance on complex written and perhaps oral examinations. The difference would be both in the performance criterion—exams versus tests—and in the incentives—professional advancement rather than money. The National Board for Professional Teaching Standards currently is developing the latter approach.

30. One discussion of the rationale for such cutbacks is offered by Smith & O'Day (1991).
31. Cohen & Spillane (1992) report one premise underlying this sort of policy agenda is that guidance for instruction in U.S. education is weak, inconsistent, and diffuse. Many private and public agencies issue advice concerning instructional purposes, content, and methods for teachers and students, but few take account of each other's advice. Hence much of the guidance is unrelated, divergent, or contradictory. Guidance for instruction also has been largely decoupled from government. While public agencies have extensive authority to guide instruction, historically they delegated much of it to private firms or local schools. The influence of U.S. school governments therefore pales when compared to central or provincial agencies elsewhere. The result is paradoxical: public and private agencies here prolifically produce guidance, more than in

societies with much more potent advice for instruction, but it does not press instruction in any consistent direction. When guidance is inconsistent and diffuse, no single test, curriculum, policy, or program is likely to have a broad or marked effect. Many teachers and students are aware of different sorts of advice, but few are keenly aware of most of it. Many know that most guidance is either weakly supported or contradicted by other advice, and that much can safely be ignored. The din of diverse, often inconsistent, and generally weak guidance opens considerable latitude to those who work within it.

Another premise for the policy agenda sketched above is that guidance for instruction might have to be greatly strengthened if teaching is to dramatically improve. In this connection, many reformers recently have embraced proposals for "systemic" change—that is, a linked set of reforms in curriculum, teaching, standards, assessment, and teacher education, all aimed at promoting intellectually demanding instruction (see Smith & O'Day, 1991). Some advocates of this approach argue that close alignment among assessment, curriculum frameworks, and texts and other materials would make it clear to teachers and students what they needed to teach and learn. Advocates also contend that such a system would offer many salient opportunities for educators to learn. For instance, grading students' work on systemwide examinations could be an extraordinary educational opportunity for teachers and administrators, if it were properly organized. That would require the selection of useful papers for discussion, finding adequate time to discuss them, and representing a range of useful perspectives in the discussions, including, for example, university subject matter specialists. Such exam grading also could provide many useful opportunities to consider the links between examinations and curricula, and thus to revise exams and curricula.

32. Cohen & Spillane (1992). Teaching is uncertain anywhere and difficult to influence in any system. It also is a rather different sort of work than administration or policymaking, entailing different sorts of knowledge and skills. All this is true in any system. But in some systems inspection and promotion ar-

rangements mean that no one winds up in administrative or ministry posts unless they have been experienced teachers who were judged to be of high quality. That tends to link policy and administration with practice. But in the United States those links are entirely absent. What professionals need to succeed as policymakers or administrators depends not at all on their performance as classroom practitioners. That greatly attenuates connections between the two worlds.

33. Firestone, 1989.
34. Smith, O'Day, & Cohen (1990) report that the American public and many national leaders have changed their attitudes about education considerably in the last twenty years. In 1971 the U.S. Congress asserted, "No provision of any applicable program shall be construed to authorize any department, agency, officer, or employee of the United States to exercise any direction, supervision, or control over the curriculum . . . of any educational institution" (p. 10). This belief in the local control of curriculum and instruction was consistent with the beliefs of most Americans. But by 1989, public opinion about curriculum was shifting toward support of a national curriculum, national standards, and a testing program to measure progress. A Gallup poll conducted that year showed 70 percent of Americans were in favor of national achievement standards and goals, 69 percent were in favor of a standardized national curriculum, and 77 percent were in favor of a national testing program.

#### References

- Boyer, E. (1983). *American high school: A report on secondary education in America*. New York: HarperCollins.
- Braybrooke, D., & Lindblom, C. E. (1963). *A strategy of decision: Policy evaluation as a social process*. New York: Free Press.
- Bryk, A., & Lee, V. (in press). *Catholic high schools*. Cambridge: Harvard University Press.
- Cohen, D. K. (1989). Practice and policy: Notes on the history of instruction. In D. Warren (Ed.), *American teachers: Histories of a profession at work*. New York: Macmillan.

- Cohen, D. K. (1988). Teaching practice: Plus que ça change. . . . In P. W. Jackson (Ed.), *Contributing to educational change: Perspectives on research and practice* (pp. 27-84). Berkeley, CA: McCutchan.
- Cohen, D. K., & Grant, S. G. (in press). America's children and their elementary schools. *Daedalus* [Special issue: America's children, age three to eleven].
- Cohen, D. K., & Spillane, J. S. (1992, April). Policy and practice: The relations between governance and instruction. *Review of Research in Education*, 18. Washington, DC: American Educational Research Association, 3-50.
- Cuban, L. (1984). *How teachers taught: Constancy and change in the American classroom*. New York: Longman.
- Dewey, J. (1956). *The child and the curriculum*. Chicago: University of Chicago Press. (Original work published 1902)
- Dewey, J. (1966). The nature of method. In *Democracy and education* (pp. 164-179). New York: Free Press. (Original work published 1916)
- Duffy, J., & Roehler, L. (1986). *Improving classroom reading instruction: A decision-making approach*. New York: Random House.
- Elbow, P. (1986). The teaching process. In *Embracing contraries: Explorations in learning and teaching*. New York: Oxford University Press.
- Elmore, R. F., & McLaughlin, M. W. (1988). *Steady work: Policy, practice, and the reform of American education*. Santa Monica, CA: RAND Corporation.
- Firestone, W. (1989). Educational policy as an ecology of games. *Educational Researcher*, 18(7), 18-24.
- Fiske, S. T., & Taylor, S. E. (1984). *Social cognition*. Reading, MA: Addison-Wesley.
- Guthrie, J. W. (Ed.). (1990). *Educational Evaluation and Policy Analysis*, 12(3) [Entire issue].
- Johnson, S. M. (1990). *Teachers at work: Achieving success in our schools*. New York: Basic Books.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Lakatos, I., & Musgrave, A. (Eds.). (1970). Criticism and the growth

- of knowledge. *Proceedings of the International Colloquium in the Philosophy of Science, 4*. Bedford College, England, 1965.
- Lampert, M. (1986). Teachers' strategies for understanding and managing classroom dilemmas. In M. Ben-Peretz, R. Bromme, & R. Halkes (Eds.), *Advances in research on teacher thinking*. Lisse, Netherlands: Swets and Zeitlinger.
- Lampert, M. (1988a). Teachers' thinking about students' thinking about geometry: The effects of new teaching tools. Cambridge, MA: Educational Technology Center.
- Lampert, M. (1988b). *Teaching that connects students' inquiry with curricular agendas in schools* (Technical Report). Cambridge, MA: Educational Technology Center.
- Little, J. (1982). *Norms of collegiality and experimentation: Workplace conditions of school success*. *American Education Research Journal, 19*(3), 325-340.
- March, J. G. (1979). *Ambiguity and choice in organizations* (2nd ed.). Bergen, Norway: Universitetsforlaget.
- Markus, H., & Zajonc, R. (1985). The cognitive perspective in social psychology. In G. Lindzey & E. Aaronson (Eds.), *Handbook of social psychology* (3rd ed., 1). Hillsdale, NJ: Erlbaum.
- McLaughlin, M. (1978). Implementation as mutual adaptation: Change in classroom organization. In W. Williams & R. F. Elmore (Eds.), *Social program implementation* (pp. 167-180). New York: Academic Press.
- McKeachie, W., Pintrich, P., Lin, Y., & Smith, D. (1986). *Teaching and learning in the college classroom: A review of the research literature*. Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.
- Newmann, F. M. (1988). Higher order thinking in the high school curriculum. *NASSP Bulletin, 72*, 58-64.
- Nisbett, R. E., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgement*. Englewood Cliffs, NJ: Prentice-Hall.
- Post, T., Behr, M., Harel, G., Lesh, R., & Taylor, B. R. (1988). *Intermediate teachers' knowledge of rational number concepts*. Unpublished paper. University of Wisconsin, National Center for Research in Mathematical Sciences Education, Madison.

- Powell, A., Farrar, E., & Cohen, D. (1985). *The shopping mall high school*. Boston: Houghton Mifflin.
- Sarason, S. (1982). *The culture of the school and the problem of change* (2nd ed.). Needham Heights, MA: Allyn & Bacon.
- Scardamalia, M., Bereiter, C., & Steinbach, R. (1984). Teachability of reflective processes in written composition. *Cognitive Science, 8*(2), 173-190.
- Sizer, T. R. (1984). *Horace's compromise: The dilemma of the American high school*. Boston: Houghton Mifflin.
- Smith, M., & O'Day, J. (1991). Systemic school reform. In S. H. Fuhrman & B. Malen (Eds.), *The politics of curriculum and testing* (pp. 233-268). New York: Falmer.
- Smith, M., O'Day, J., & Cohen, D. K. (1990, Winter). National curriculum American style. *American Educator, 14*(4), 10-17, 40-47.
- Thompson, A. (1984). The relationships of teachers' conceptions of mathematics and mathematics teaching to instructional practice. *Educational Studies in Mathematics, 15*, 105-127.
- Wildavsky, A., & Majone, G. (1979). Implementation: Exorcising the ghost in the machine. In J. Pressman, & A. Wildavsky, (Eds.), *Implementation*. Berkeley: University of California Press.

While not new, promotion of active learning pedagogies is gaining momentum in the academic literature and policy arenas as a viable solution for increased student achievement. The Finnish National Board of Education has required, for example, that all primary and secondary school subjects in at least one classroom period be taught through the active interdisciplinary, "phenomenon based" learning pedagogy, by the end of 2016 (Finnish National Board of Education, 2015). This article seeks to determine whether classification of active learning pedagogies would be useful in comparing and contrasting pedagogies, in theory and practice. Anthony Laker leads an outstanding international team of educational theorists in critically examining the theoretical underpinnings of physical education, and in challenging the rhetoric, the practices and the pedagogies that prevail in our schools. Luxembourg Macao Macedonia, The Former Yugoslav Republic Of Madagascar Malawi Malaysia Maldives Mali Malta Marshall Islands Martinique Mauritania Mauritius Mayotte Mexico Micronesia, Federated States Of Moldova, Republic Of In this concluding chapter of the book, the proposition of the digital university as a contested space is revisited in the context of current political and sector developments and their resulting implications for key aspects of universities and the student and academic experience within our higher education institutions. Major themes and recurring motifs within the book are summarised and synthesised, in addressing the digital university as a liberating social force, prospects for future practice, and agendas for change. In exploring the latter area, a number of potential themes and foci for

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