Expanding Policy Options for Educating Teenagers

David Stern

Summary

David Stern argues that some basic features of the American high school must be modified if it is to serve all students successfully. He notes, for example, that only three-quarters of U.S. high school students graduate four years after beginning ninth grade and that the National Assessment of Educational Progress found no improvement in reading or mathematics for seventeen-year-olds between 1971 and 2004. The nation's system for educating teenagers, says Stern, seems to be stuck, despite the constant efforts of teachers and repeated waves of reform.

Citing two widely accepted public purposes of educating teenagers—preparation for civic participation and for economic self-sufficiency—Stern proposes four new strategies to achieve those goals. He draws on empirical evidence suggesting that these are promising directions for research and policy, but acknowledges that existing studies provide only limited guidance.

First, he says, schools should continue the current trend toward integrating educational options to provide young people with skills and experiences that pave the way to *both* college and careers. Second, states and districts should tie education funding not simply to the number of students attending school, but also to what young people learn, whether they graduate, and whether they find jobs or enroll in postsecondary education. Such a move, he argues, would encourage teaching and learning formats that use students' time more effectively. Third, more adults in addition to classroom teachers should be involved in educating teenagers. Other adults acting as academic advisers, learning coaches, student advocates, internship supervisors, mentors, and college counselors could help guide the education of teenagers inside and outside of school and provide some relief for the chronic shortage of teachers. Fourth, schools should expand the options for educating teenagers outside of geographically fixed schools. Combining improved Internet-based curriculum with internships and civic engagement projects, for example, may produce better results for many young people and also may promote academic achievement for teenagers who do not thrive in conventional classrooms and for those who face academic and social challenges when they move from one place to another. Stern argues that the limited success of today's high schools makes such new initiatives well worth trying and evaluating.

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The basic structure of the American high school that emerged in the twentieth century has never served all students successfully. Although graduation rates rose steadily from about 1900 to 1970, the share of public high school students who graduate with regular diplomas four years after starting ninth grade has remained at about 75 percent since then.[1] The National Assessment of Educational Progress found no improvement in reading or mathematics for seventeen-year-olds between 1971 and 2004.[2] Although larger numbers of high school graduates are going directly to college, the number completing college degrees has risen much more slowly.[3] The system seems to be stuck, despite the constant efforts of teachers and repeated waves of reform. A *Future of Children* issue on American high schools is a good place to consider possible new directions for policy and research.

I begin by reviewing two of the widely accepted public purposes of education for teenagers: to produce informed citizens and to prepare students for economic self-sufficiency. In examining how well high schools are fulfilling those two goals, I find much room for improvement. I then analyze some of the structural limitations of the conventional high school model that may hamper fulfillment of those goals and suggest possible ways to overcome them. To the extent possible, I draw on empirical studies, but I acknowledge at the outset that the evidence is insufficient to prove that all the prescriptions I propose are correct. My purpose is to recommend some new directions for policy and research that offer promise for guiding the evolution of American high schools over the coming decades.

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Public Purposes of Education for Teenagers

In considering how to improve education for teenagers,[4] it is important to recall why education is compulsory for teenagers and why taxpayers are required to pay for it. Most Americans agree that the public purposes of a high school education include enabling students to become informed citizens, and preparing them for economic self-sufficiency. A key pathway to economic self-sufficiency is through higher education. But because the question of how high schools are succeeding in preparing students for postsecondary education is discussed in depth elsewhere in this volume (see the articles by Melissa Roderick, Jenny Nagaoka, and Vanessa Coca, and by Valerie Lee and Douglas Ready), I focus much of this discussion on preparing students for economic self-sufficiency through career-technical education in high school.

Citizenship First

In response to a recent California court decision on homeschooling, the state's Secretary of Education reportedly declared, "'As a society, we recognize that a well-educated citizenry is our goal.' The purpose of compulsory education is 'to help ensure that.'"[5] The

U.S. Supreme Court has repeatedly invoked the ideal of good citizenship in making decisions about education. In the 2003 *Grutter v. Bollinger* ruling that it is permissible for universities to consider race in selecting students for admission, for example, the Supreme Court quoted the 1954 *Brown v. Board of Education* decision that "education … is the very foundation of good citizenship."

A 2000 Gallup Poll on public attitudes toward education asked respondents to rate the importance of seven different "purposes that have been offered to explain why America needs a system of public schools." The purpose that earned the highest average rating from respondents was "to prepare people to become responsible citizens."[6]

Even conservative economists who favor private over public provision of many services have endorsed the idea that tax-supported public education is justified by the goal of preparing citizens. For example, in his famous 1955 essay on "The Role of Government in Education," Milton Friedman explains the public benefits of general education for citizenship as follows:

> A stable and democratic society is impossible without widespread acceptance of some common set of values and without a minimum degree of literacy and knowledge on the part of most citizens. Education contributes to both. In consequence, the gain from the education of a child accrues not only to the child or to his parents but to other members of the society; the education of my child contributes to other people's welfare by promoting a stable and democratic society. Yet it is not feasible to identify the particular individuals (or families) benefited or the money value of the benefit and so to charge for the services rendered.[7]

Friedman's view harks back to Adam Smith, who described with brutal honesty in the *Wealth of Nations,* what he saw as the devastating effects on workers of repetitive and mindless work. As a prime remedy for these ills, Smith proposed public schools. Public support for schools, he argued, is warranted and necessary to avoid the "dreadful disorders" that arise among unschooled people. "Instructed and intelligent people," by contrast, are less susceptible to "the delusions of enthusiasm and superstition" or the claims of "faction and sedition." For Adam Smith, public order was the public benefit that justified providing schooling at public expense.[8] Others among Smith's contemporaries, notably including Thomas Jefferson and James Madison, also viewed education for citizenship as a governmental responsibility.[9]

Economic Self-Sufficiency

The educational purpose that respondents in the 2000 Gallup Poll ranked a close second to that of preparing citizens was helping students become economically self-sufficient.[10] During most of the twentieth century, high schools fulfilled this second goal in two ways: through academic courses leading to college and through vocational education, defined as preparation for occupations that did not require a college degree. In recent decades, traditional forms of vocational education have gradually given way to what is now called career-technical education (CTE), a broader notion of preparation for economic self-sufficiency that includes readiness for postsecondary education as well as for entering the workforce directly. As I will show, the trend away from a sharp separation of preparation for college and preparation for careers is one example of how limitations of the twentieth-century high school model may be successfully overcome.

How Well Do High Schools Achieve the Public Goals of Education?

Available evidence indicates much room for improvement in preparing high school students for civic responsibilities. In preparing students for work, the results are somewhat ambiguous: traditional vocational classes have led to higher earnings among high school graduates who do not attend college, but students who take more vocational classes also have been less likely to attend college and thereby gain access to high-paying jobs that require college degrees.

Preparation for Civic Life

Are high schools preparing teenagers to take on the civic responsibilities of adults? Civic competence has three key components, including the analytical skills necessary to reason about public issues, familiarity with governmental institutions, and participation in community affairs. A brief review of the research indicates considerable room for improvement on all three components.

Analytical skills are essential to fulfilling some of the basic roles of citizens, including serving on juries and voting on ballot propositions routinely placed before voters in many states. Just as one example, voters in California between 2000 and 2004 considered thirty-seven statewide ballot propositions, as well as hundreds more local propositions. The statewide ballot matters involved complex and contentious issues such as limiting campaign contributions, enabling Indian tribes to open more gambling casinos, and regulating chiropractors. Other issues included whether public agencies should be allowed to collect data on race or ethnicity, penalties for first-time convictions on illegal drug charges, and dedication of state revenues for rebuilding infrastructure. Since California first started putting propositions before the voters in 1901, many have had powerful and lasting effects on government and society.

To help voters make informed choices about ballot propositions, California mails each registered voter a booklet, sometimes up to 200 pages of dense type, that gives the full text of each proposition, provides an analysis by a state agency that is intended to be impartial, and also presents arguments by proponents and opponents, along with rebuttals. Using the information from the booklet to make a reasoned decision about how to vote requires "making a critical judgment about a detailed document," a reading skill rated at the "proficient" level by the National Assessment of Educational Progress (NAEP).[11] But as of 2005, only 35 percent of twelfth graders scored proficient or better in reading, suggesting that most high school seniors would not be able to read and reason well enough to use the booklet successfully.

In 1998 and 2006, NAEP specifically assessed "students' understanding of the democratic institutions and ideals necessary to become informed citizens." Only 27 percent of twelfth graders scored proficient or better in 2006, with no significant improvement since 1998. For example, only 5 percent of twelfth graders correctly explained three ways in which the power of the president can be checked by the legislative or judicial branch. Similarly, Mark Hugo Lopez and several colleagues report results from a 2006 national survey of fifteen- to twenty-five-year-olds, in which 54 percent believed that the U.S. government spent more on foreign aid than on Social Security, and only 30 percent could correctly name at least one member of the president's cabinet. Evidently, high school graduates lack important knowledge about the institutions of government.

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The third component of civic competence, participation in civic or community affairs, includes voting and various kinds of volunteering, among other things. Young people who have graduated from high school but have not attended college are less likely to vote or volunteer than their peers who attend college. According to Lopez and his colleagues, voter turnout rates among eighteen- to twenty-four-year-old citizens who have not attended college are, and have been consistently since the 1970s, only about half the rates among college attendees.[12] Similarly, Karlo Barrios Marcelo analyzed 2006 Current Population Survey data on volunteering among nineteen- to twenty-five-year-olds and found that 8 percent of high school graduates who did not attend college reported some kind of volunteer activity, compared with 31 percent of college graduates, 26 percent of current college students, and 23 percent of young people who had some college experience but were not currently enrolled.[13] These differences are partly attributable to socioeconomic and personal variables that affect both college attendance and civic participation. Nevertheless, it is evident that high school by itself does not produce graduates who have high rates of voting or volunteering.

Given these data, it would be difficult to claim that high schools are fulfilling the first public purpose of education for teenagers: enabling them to become informed and responsible citizens.

Preparation for Economic Self-Sufficiency

Today, more than 95 percent of students graduating from high school have taken at least one course in what used to be called vocational education and is now called career-technical education (CTE). Between 1982 and 2000, a steady share of about 45 percent of these graduating seniors took at least three year-long courses in CTE. The share taking at least three courses in a single occupational area (for example, business or health careers) declined from about 33 percent to 24 percent during that period.[14] The mean number of CTE credits earned by graduating seniors declined from 4.4 in 1982 to 3.8 in 2000, while the number of credits earned in academic subjects rose from 14.5 to 19.1.[15] Nationwide, CTE programs are provided in about 9,500 comprehensive high schools, in about 1,000 vocational high schools whose students enroll full-time and also take academic subjects, and in about 800 area or regional vocational schools that offer only CTE courses and whose students attend part-time, taking their academic coursework at their "home" high schools.[16]

A key question is the extent to which high school CTE accomplishes the purpose of preparing students to earn a living. There is some evidence that high school CTE has been successful in this realm, although the research is not completely convincing. This research finds that graduates who take more CTE courses in high school obtain higher earnings.[17] For example, Ferran Mane used three national longitudinal surveys to analyze labor market outcomes for high school graduates in

1972, 1980, and 1992. He examined how the total number of CTE courses and the total number of academic courses of students were each related to the number of months they were employed in the year following graduation, their hourly wage, and their annual earnings. Significantly, the number of vocational courses was more positively related to these labor market outcomes than the number of academic courses. The difference was generally greater for graduates in 1980 and 1992 than in 1972.[18]

Correlational studies such as Mane's suggest that the labor market outcomes of students who took CTE improved as a result of having taken the classes. Such studies, however, are limited because of what social scientists call "selection bias." Some students may "self-select" into high school CTE classes because they are interested in the kind of work for which such classes prepare them. Providing CTE for students who are not interested would not necessarily produce equally positive results. Selection bias is inherent in correlational studies and can lead to either overstating or understating the effect being measured.

Students who take many CTE classes in high school are less likely than their peers who take few such classes to participate in postsecondary education or to complete a degree, further complicating estimates of the effects of high school CTE on subsequent success in the labor market. Mane's study was limited to high school graduates who had not participated in full-time postsecondary education for more than six months in the first twenty-one months after high school. But the higher earnings associated with more CTE for these students are offset by the higher probability of going to college for students who take fewer CTE classes. The 2003 National Assessment of Vocational Education, for example, compared the postsecondary educational experiences of vocational "concentrators"—defined as students who had taken at least three CTE classes in the same occupational area—with those of non-concentrators. Among the concentrators, 19 percent had completed a bachelor's or higher degree within eight years after high school; among the non-concentrators, the share was 46 percent.[19] Students who take more CTE in high school are thus less likely to gain access to the more highly paid jobs that require a bachelor's or advanced degree.

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Summary

Americans agree widely that two important collective purposes of education include preparing for civic responsibilities and equipping students to earn a living. Research evidence indicates much room for improvement in achieving the first goal, but possibly some success in achieving the second. One way to address the goal of equipping students to earn a living has been through what used to be called vocational education and is now called career-technical education. Among students who do not enroll in postsecondary education, there is some evidence that taking more career-technical courses in high school can lead to higher earnings. This finding, however, comes from correlational studies

that may overstate (or understate) the true effects of these courses. Furthermore, students who take more career-technical courses in high school also have been less likely to participate in postsecondary education.

Limitations in the Twentieth-Century High School Model

In this section I describe four standard features of the twentieth-century American high school that arguably have made it more difficult to educate teenagers effectively for civic participation and economic self-sufficiency. The first such feature is the traditional separation of academic and vocational curricula. That separation has until recently been cast as a mutually exclusive choice that students must make or that is made for them, so that students who take more vocational classes in high school have less access to college. The three other features are attendance-based school funding, the multi-period school day, and the geographically fixed nature of high schools. Altering these features may make it possible to educate teenagers more effectively.

Separating Academic and Career-Technical Curricula

Whether preparation for work and preparation for college should be two separate tracks in the American high school curriculum has long been a subject of debate. Social scientists from John Dewey a hundred years ago to George Counts in the 1930s to Jeannie Oakes and others more recently have criticized such tracking, arguing that it disproportionately places low-income and minority students in vocational classes that do not challenge them academically or prepare them for college.[20] During the 1980s, influential spokesmen for employers, traditionally strong advocates for vocational education, began to question its efficacy in preparing students for a changing economy. Congress responded in 1990 by approving federal support to "integrate academic and vocational education."[21] In 2006, language limiting CTE to preparing students for occupations that do not require a bachelor's or advanced degree was eliminated from federal law.

The American debate about whether to establish separate high school curricula for college-bound and work-bound students began in the late nineteenth century. A very influential 1894 report by the Committee of Ten, headed by Harvard President Charles W. Eliot and composed mainly of university professors, argued unambiguously that all students should take the same rigorous academic curriculum, whether or not they intend to go to college.[22] However, that policy did not prevail. In 1918, the National Education Association produced another landmark report, the *Cardinal Principles of Secondary Education*, in which a group composed mainly of authorities in educational administration argued, among other things, that high school curriculum should be differentiated according to students' vocational interests.[23]

Significantly, in 1918, Congress passed the Smith-Hughes Act, which for the first time provided federal money for states to support vocational education in high schools. By explicitly defining vocational education as preparation for occupations that did not require a bachelor's or advanced degree, the Smith-Hughes Act affirmed that vocational education was not intended to prepare high school students for college. The *Cardinal Principles* report and the Smith-Hughes Act were major victories for those like Charles A. Prosser, who saw differentiated curriculum as a means to achieve social efficiency, and a defeat for John Dewey and others who wanted to achieve democratic equality by

offering the same rigorous academic curriculum to all students.[24]

The early debate about differentiated curriculum occurred at a time when high school enrollment growth was beginning to accelerate as a result of the shift from a rural agricultural society to an urban industrial economy. Relative to the population of fourteen- to seventeen-year-olds, the share of students enrolled in grades nine through twelve grew from 6 percent in 1889–90 to 14 percent in 1909–10, then to 31 percent in 1919–20, and 51 percent in 1929–30.[25] Vocational education was a logical program for the mass of new students, most of whom would not attend college.

At the time of the Smith-Hughes Act, college was still for the few. In 1920, only 3 percent of the population aged twenty-five and older had bachelor's degrees. As the twentieth century progressed, college enrollments steadily grew. The share of the population aged twenty-five and older with bachelor's degrees reached 20 percent in 1987 and 29 percent in 2007.[26] The rise in the share of college graduates was in part a response to growing demand, which has kept the average earnings of college graduates consistently well above those of high school graduates.[27]

When few high school students expected to attend college, the fact that vocational education did not lead to college was less problematic than it is now, when most high school students expect to attain at least a bachelor's degree. The nationally representative 2002 Education Longitudinal Study found that 72 percent of high school sophomores expected to earn at least a bachelor's degree, and 10 percent did not have definite expectations, so only 18 percent definitely did not expect to earn a bachelor's degree.[28] National surveys indicate that high school students' expectations of college attendance have grown significantly since the 1980s. Between 1981–82 and 2003–04, the share of high school seniors who expected to attain at least a bachelor's degree rose from 35 to 69 percent.[29] Because a large majority of high school students have come to expect that they will earn bachelor's degrees or more, the fact that traditional vocational education has not been a path to college has made it less attractive to many students and their parents.

Employers provided important political backing for vocational education during most of the twentieth century. However, as America was becoming alarmed about serious international economic competition during the 1980s, key business spokesmen began to question whether traditional vocational education provided a sufficiently solid academic foundation for employees to continue to learn and adapt to new technologies during their working lives.[30]

The 1983 report titled *A Nation at Risk* tied the perceived decline in national economic competitiveness to a lack of academic rigor in the nation's schools.[31] The report spurred state legislatures to increase the number of courses in mathematics, science, English, and social studies required for high school graduation. Business groups also supported the increased requirements, which have reduced the amount of time available in students' schedules to take vocational classes.

The continued viability of separating academic and vocational education in high school, which was a standard feature of the twentieth-century American high school, has been called into doubt by growth in the share of high school students expecting to attend college, by the softening of political support

from employers, and by the increased academic course requirements for high school graduation. Later in this article I will describe how high school career-technical education has changed since the 1980s, to become more compatible with preparation for college.

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Attendance-Based School Funding

A second standard feature of high schools (and of K–12 schools generally) has been that funding depends on student enrollment or attendance, without regard to how well students themselves fare. Here I describe how current funding formulas may lead to unproductive use of students' time.

Subventions from states have become the main source of school district revenues, with various formulas being used to distribute money.[32] Most states provide basic or "foundation" funding, along with various "categorical" grants for particular activities or categories of students. However varied the funding formulas may be, one feature is constant: the amount of money depends on the number of students, without regard to student outcomes.[33] The amount may depend on the number of students enrolled, or the number in attendance, and it may depend on grade level or other student characteristics. But it does not depend on what students learn or whether they graduate.

In effect, states pay districts simply to keep teenagers in custody. The law requires teens to attend school, and districts get money simply for keeping them there. For funding purposes, all that matters is that they be physically present at a school, not what they learn there.[34]

This arrangement seems almost guaranteed to waste students' time. During the school day, schools do not have to consider the opportunity cost of students' time because their time has no alternative use. Students' options are limited to what the school offers and allows. The extent to which high schools use students' time productively varies from school to school, classroom to classroom, and student to student, but research finds that much time is, indeed, wasted.

Studies of high schools over the years have documented widespread disengagement among students.[35] The 2006 High School Survey of Student Engagement asked a national sample of students, "Why are you in school?" Reflecting an awareness of compulsory school attendance, 58 percent replied, "Because it's the law." Only 39 percent replied, "Because of what I learn in classes."[36]

The same survey asked students, "Have you ever been bored in class in high school?" Two out of three students indicated they are bored in class in high school at least some of the time every day; 17 percent said they are bored in every class. Only 2 percent said they were never bored in class. Students were then asked, "If you have been bored in class, why?" Seventy-five percent of them replied that the class material was not interesting;

39 percent, that the material was not relevant to them; 32 percent, that the work was not challenging enough; 31 percent, that there was no interaction with a teacher; and 27 percent, that the work was too difficult.[37]

The similarity in the shares of students who said the work is too hard or not hard enough is consistent with theories of engagement proposed by Mihaly Csikszentmihalyi. Maximum engagement, or "flow," occurs in situations that challenge valued skills. Situations involving no skill or challenge produce apathy; those where skills are used but not challenged create "relaxation"; and situations where challenge exceeds skills cause anxiety. None of those situations is optimally productive. David Shernoff, Csikszentmihalyi, and Barbara Schneider applied this theory to high school students, using data obtained by paging students at eight random times a day and asking them to answer questions about what they were doing at that moment and how they felt about it. They found that the students spent a lot of time in activities that were less engaging, like listening to teachers talk or doing homework in class. Students spent less time in more engaging activities like group projects.[38]

Other evidence of wasted time comes from the National Education Longitudinal Survey (NELS). Jennifer King Rice analyzed the NELS data reported by teachers to see whether use of time was associated with class size in high school math and science. She compared time devoted to instruction and time committed to non-instructional activities. Relationships with class size were mixed, but the overall average responses imply that both math and science teachers reported spending about 10 percent of class time on administrative tasks and about another 10 percent on maintaining order—a total of 20 percent on non-instructional activities.[39]

The most egregious waste of students' time may occur in settings where misbehaving students are sent—for example, detention, in-school suspension, or alternative schools for disruptive students. Districts are paid for students in these settings, but the students may learn very little. In-school suspensions keep students on the school premises, but apart from regular classrooms, while they are serving their suspension time. According to Troy Adams, this practice increased during the 1980s and 1990s in response to the 1975 U.S. Supreme Court decision in *Goss v. Lopez,* which made it more difficult to suspend students from school without due process.[40]

The "bell schedule" that divides the school day into instructional periods is another standard feature of high schools that may sometimes interfere with effective education.

Programs provided in some of these settings for misbehaving students are not likely to achieve the goals of compulsory education, as Regina M. Foley and Lan-Sze Pang found in a survey of principals of alternative schools for disruptive students in Illinois. The schools, operated by school districts, special education cooperatives, or regional offices of education, served students both with and without disabilities. The survey found that most students in the schools were referred, suspended, or expelled from regular high schools. Programs typically were housed in

"hand-me-down" buildings and offered limited access to libraries or science facilities. The curriculum was characterized mainly as general or vocational, with little or no college-preparatory coursework.[41]

The alternative schools surveyed by Foley and Pang are sometimes called "last-chance" programs to distinguish them from other alternative schools created for more positive reasons, such as to give students more choice, usually in a smaller setting where students can receive more personal attention. Cheryl Lange and Sandra Sletten have described the varied offerings grouped under the "alternative" umbrella, but the point here is that within this broad category some alternative settings serve mainly to detain teenagers, providing only low-quality education while the districts or other operating agencies collect money for this service.[42]

If regular high schools find some students difficult to deal with, they can send them to alternative schools, and the district continues to receive funding for them. Some of these students choose to enroll in charter schools, which are not operated by school districts but do receive public funding for each student. It is thus not surprising that when Susan Rotermund compared annual dropout rates among different categories of schools in California she found that alternative schools account for 8 percent of enrollments in grades nine through twelve but 33 percent of dropouts. She also found that charter schools enroll 4 percent of high school students but account for 16 percent of the dropouts.

Alternative and charter schools with very high dropout rates are presumably taking large shares of students who have some kind of trouble in regular high schools. In recent years, state and federal accountability policies that depend on test scores have given regular high schools yet more reason to get these students off their books and let them go to alternative or charter schools. A 2007 study by the California Legislative Analyst criticized the practice, and the legislature responded by passing a law requiring that test scores of students sent to alternative schools be attributed to the original school for accountability purposes.[43] But districts or charter operators will still be paid to enroll these students, whether or not they are effectively educating them.

The Multi-Period School Day and the Teacher Quality-Quantity Quandary

The "bell schedule" that divides the school day into instructional periods is another standard feature of high schools that may sometimes interfere with effective education. To receive a high school diploma, a student must satisfactorily complete certain numbers of "units" in particular subjects, as required by the state and the local school district. Each unit requires at least a minimum number of instructional hours. The only feasible way to keep track of the number of instructional hours a student receives in each subject is to divide the school day into periods, so that every student can be counted as taking a particular subject during each period.

Breaking up the educational process into rigid time periods increases the difficulty of keeping students interested. A period of math, followed by a period of English, then science, then history—in whatever order—confronts students with a series of disjointed assignments. If a student does become involved in a class, the experience nevertheless must stop when the bell rings. Field trips or projects that take extended periods of time are difficult to fit into the schedule. Many high schools have recently tried to group

students and teachers into small learning communities (SLCs), with a given set of students taking several classes together so that teachers can create some connections among their separate subjects. But this strategy turns out to be difficult to implement, because the school's master schedule often includes only one or two sections in certain subjects, and scheduling students for that section or sections conflicts with keeping them together with their SLC.[44]

The multi-period school day also increases the challenge of teaching. With many teenagers feeling that they are in school only because they have to be, it takes a great deal of talent, energy, commitment, and resourcefulness for a high school teacher to keep classes lively, engaging, and worthwhile for students. Chopping up the curriculum into uniform chunks makes the experience more artificial and regimented for students and adds to the challenge of teaching them.

The multi-period day also means that each teacher must interact with many individual students every day. A typical high school teacher meets four to six classes each day, depending on the length of class periods. With 20–30 or even more students in each class, a teacher interacts with 100–150 different students, or more, every day. As Richard Elmore has pointed out, the standard structures of mass schooling militate against effective teaching.[45] How to connect with, understand, instruct, support, and stimulate each student appropriately is a huge challenge—even if the students want to be there. Because many students are less than willing participants in the classroom, motivating and disciplining them also can become a major part of teachers' work. Theodore Sizer's influential study, *Horace's Compromise*, poignantly depicted teachers' difficulties trying to engage a series of teenage groups over the course of the multi-period school day.[46]

No wonder so many new teachers quit. Richard Ingersoll has analyzed four waves of the national Teacher Follow-up Survey, and found that "after just five years, between 40 and 50 percent of all beginning teachers have left teaching altogether."[47] Some return to teaching later, but most do not. Among teachers who indicated they left because of some dissatisfaction, 61 percent cited poor salary; 32 percent, poor administrative support; 24 percent, student discipline problems; and 18 percent, poor student motivation.[48]

Various policies have been proposed to reduce turnover and remedy the chronic shortage of good teachers, as summarized by Richard Murnane and Jennifer Steele in a recent issue of this journal focused on teachers.[49] Because teachers' salaries are low, and getting lower compared with those of other college graduates, one possible solution would be to raise teachers' salaries across the board to reduce turnover and attract more people into teaching. However, Murnane and Steele, along with Erik Hanushek and Steven Rivkin, conclude that higher salaries would not necessarily improve teacher quality because districts cannot accurately identify in advance which new teachers will be effective and because it is difficult to discharge tenured teachers who turn out to be ineffective.[50] Nor is it likely that taxpayers would suddenly be willing to support a substantial hike in teachers' pay. Instead, researchers have proposed experimenting with targeted salary increases for teachers in certain kinds of schools or in certain hard-to-staff disciplines.[51] Some argue that tying teachers' pay to their performance would attract more high-performing teachers.[52]

If teachers' salaries cannot be increased enough to alleviate shortages, policy makers are caught in what could be called a quality-quantity quandary. Some proposals would reduce barriers to entry into teaching by easing credential requirements to let in recent bachelor's degree graduates who want to try teaching but do not want to take time to earn a teaching credential. The Teach for America program, for example, has claimed success in recruiting bright young teachers who have just completed undergraduate studies but have not undergone formal teacher training. Opponents of this approach argue that it reduces teacher quality and demeans the teaching profession. Conversely, requiring new teachers to pass examinations as a condition for earning a teaching credential is seen as a way to ensure quality, but opponents point out that testing requirements reduce the number of people available to teach. How best to balance the quality and quantity of teachers, given available salary levels and the challenges of custodial classrooms, is a question that fuels protracted debate.

Immobile Schools and Mobile Students

Another structural limitation of the traditional high school model is the mismatch between the large number of students who move from place to place and the fixed geographic location of schools.

Although schools are rooted in place, many students are not. According to Russell Rumberger, who has studied this issue extensively, a majority of students during their K–12 career change schools at least once for reasons other than promotion from one level to the next. The 2000 Census found one out of six school-age children had changed residences in the previous year. Changing residences is the most common reason for changing schools; about one-third of school changes occur for other reasons.[53]

Mobility is a challenge for students and for schools. Because control over schools in the United States is decentralized, schools differ from one another in many ways: curriculum, textbooks, bell schedules, classroom norms, and rules. Students who move must adapt to all these differences. They also must learn to fit in with a new group of peers. These academic and social challenges are reflected in the lower levels of academic achievement and higher drop-out rates of unusually mobile students. According to Rumberger, statistical studies find the negative associations between mobility and school success are attenuated and sometimes eliminated by controlling for prior achievement and socioeconomic background. Students who move may already be having difficulties in school. But changing schools tends not to help.

Emerging Possibilities

How could high schools prepare teenagers more effectively for civic responsibilities and earning a living? Four directions for policy and research that seem promising are integrating academic and career-technical education to promote both work readiness and college access, incorporating measures of educational outcomes into funding formulas, easing the teacher quality-quantity quandary by involving other adults in educating teenagers, and allowing more education for teenagers to take place outside of schools.

Creating Multiple Pathways to Work and College

Over the past two decades, in recognition of the limitations built into the strong separation between academic and career preparation, explicit efforts to prepare high school students for both college and careers have become

more widespread. The share of high school graduates who have completed both an academic and a CTE concentration increased dramatically, from 9 percent in 1982 to 21 percent in 2000. During that period, the share that completed a CTE concentration but did not take a full set of academic courses fell from 23 percent to 3 percent.[54] Almost all CTE concentrators are now also completing the academic core curriculum. Contemporary CTE recognizes that preparing students to be economically self-sufficient increasingly requires that they have the option of attending postsecondary education.

What is the evidence on the effects of the recent trend toward combining CTE with a core academic curriculum? Since the 1980s, researchers have analyzed data from long-term surveys such as High School and Beyond (HSB) and the National Education Longitudinal Survey (NELS) to determine whether course-taking patterns are correlated with subsequent success in postsecondary education or work. Not surprisingly, students who combine a sufficient number of courses to qualify for college with a sequence of career-technical courses have more success in postsecondary education and work than students who complete neither the college-prep nor the career-tech sequence.[55] But studies differ in whether students who took this combined curriculum were found to do better than, the same as, or worse than students who took the college-prep but not the career-tech courses. However, as noted, it is not possible to infer from the correlational studies whether enrolling students in additional college-prep or career-tech courses actually makes any difference. Students may self-select, or be directed by teachers or counselors, into certain sets of courses because of unmeasured characteristics such as ambition, energy, drive, self-discipline, or awareness of what it takes to do well in the world. These qualities might enable them to succeed just as well without a combined academic and career-technical curriculum.

One of the most important efforts to promote a combined academic and career-technical curriculum is High Schools That Work (HSTW), led by Gene Bottoms. The Southern Regional Education Board (SREB) and a group of state partners launched this effort in 1987, "to prepare students for careers and further education by improving curriculum and instruction in high schools."[56] According to the website, "More than 1,200 HSTW sites in 32 states are using the framework of HSTW Goals and Key Practices to raise student achievement." One of those ten key practices is: "Teach more students the essential concepts of the college-preparatory curriculum by encouraging them to apply academic content and skills to real-world problems and projects." A second is: "Provide more students access to intellectually challenging career-technical studies in high-demand fields that emphasize the higher-level mathematics, science, literacy and problem-solving skills needed in the workplace and in further education."[57]

From its inception, HSTW has stressed the importance of using data to monitor its work in schools. The core of its continuous improvement system is the HSTW Assessment, a set of achievement tests, based on the National Assessment of Educational Progress, in the subjects of reading, mathematics, and science.[58] All HSTW sites are required to administer the tests in even-numbered years. Initially, the HSTW achievement tests were administered only to "vocational completers," seniors who had completed a sequence of four or more units in a particular career-technical specialty. In the late 1990s, HSTW

began offering schools the option of testing all seniors or a random sample of all seniors.

Contemporary CTE recognizes that preparing students to be economically self-sufficient increasingly requires that they have the option of attending postsecondary education.

This sampling strategy, however, makes it difficult to draw conclusions about the effects of HSTW on student achievement. If the average test scores of a school's career-technical completers are higher this year than they were two years ago, the explanation could be that this year's career-technical completers were a higher-achieving group to begin with. Upgrading career-technical courses may simply be keeping out lower-achieving students. Limiting the assessment to career-technical completers, or over-sampling this group, makes it impossible to determine whether scores increased simply because career-technical courses enrolled more students who were already achieving at higher levels.

Another difficulty is the lack of comparison groups. Even if the HSTW Assessment sample consisted of all seniors, or a random sample of all seniors, a school may show improvement over time for reasons unrelated to the HSTW program. Given increased state and federal pressure to raise test scores, some states have reported rising trends. To determine how much HSTW contributed, it would be necessary to compare HSTW schools with similar non-HSTW schools in the same states.

For these reasons, the jury is still out on whether HSTW actually causes gains in student achievement. This is ironic, given HSTW's genuine commitment to using data for continuous improvement. HSTW has published hundreds of reports, case studies, and research briefs offering data on its results. Many include results from the HSTW Assessment. But two separate meta-analyses of the HSTW evidence have both concluded that the data are simply insufficient to make a judgment. Geoffrey Borman and associates included HSTW in their review of twenty-nine different comprehensive school reform models. Based on the meta-analysis, they classified models into groups according to whether the evidence of effectiveness was strong, highly promising, or promising. They placed HSTW in the category of those with greatest need for additional research.[59] A review by the Comprehensive School Reform Quality Center similarly concluded that none of the available studies of HSTW met the center's standards for rigor of research design.[60]

Two studies of programs that combine CTE with a core academic curriculum have randomly assigned students to the program or a control group by lottery to avoid selection bias. In the first study, Robert Crain and several colleagues examined academic career magnet programs in New York City.[61] These programs were organized either as schools-within-schools in comprehensive high schools or as completely separate schools called total academic career magnets, of which there were eight. Career themes included pre-law, business, and computer science.

Crain and his colleagues found mixed effects of career magnet programs on educational attainment. After the fourth year of high school, 14 percent of the randomly selected career magnet students had dropped out of high school, compared with 11 percent of the students in comprehensive high schools. Career magnet students also had slightly lower math test scores than their counterparts in comprehensive high schools, and there were no significant differences in reading test scores, absenteeism, or the proportion taking advanced (New York State Regents') graduation tests. On the other hand, the Crain study discovered that, in the first year or two after graduating from high school, career academy students completed more postsecondary credits and were more likely to have declared a college major than students who had graduated from comprehensive high schools, even though the two groups spent about the same amount of time working.

Analysis of a small subsample of high school graduates in the Crain study found positive results on labor market outcomes. Gail Zellman and Denise Quigley, two of Crain's co-authors, compared fifty-one career academy graduates and fifty-nine students who graduated from comprehensive high schools. The two samples were matched on their first choice of career magnet, on age, and on school performance in grades seven and eight. Zellman and Quigley found career magnet graduates reported average hourly wages of $8.00, compared with $7.01 for the non-magnet graduates.

Career academies that combine CTE with an academic curriculum have also been evaluated with a random-assignment design. These academies began in Philadelphia in 1969 and spread to California and New York City during the 1980s.[62] The original impetus for this strategy was to motivate more students to complete high school, by creating a small school-within-a-school (what would now be called a "small learning community"), in which a team of teachers worked with the same group of students during grades ten through twelve or nine through twelve. Students at each grade level were scheduled as a cohort to take a core set of academic classes and a technical class related to the theme of the academy—for example, business, electronics, or health. Internships, mentorships, field trips, and other experiences linked the school curriculum to the world of adult work. The initial focus on dropout reduction was expanded during the 1980s to include completion of coursework that would qualify graduates for admission to bachelor's degree programs. The academy model is therefore a clear example of the "college and career" approach for high schools.

During the 1980s and 1990s, several different research teams conducted quantitative evaluations of career academies.[63] Some studies were quasi-experimental, comparing students in career academies with matched groups of similar students at the same high schools. Other studies used regression to estimate differences in outcomes between academy and all non-academy students at the same schools, controlling for individual students' demographic characteristics and prior achievement. Measured outcomes included indicators of success in high school such as attendance, credits, grades, and dropping out. Some studies also measured postsecondary outcomes including college attendance, bachelor's degree completion, employment, and earnings. No study found that academy students performed better on all these measures, but every study found academy students did better on some of

them, and none of the evaluations found academy students did worse.

Prompted by these results, the MDRC research organization began a random-assignment evaluation of nine career academies. Because each was the only academy in its host high school, the contrast between academy and non-academy students was clear. For the evaluation, each academy recruited more applicants than it could accommodate.[64] Surveys of students during the high school years found significant differences. In particular, students assigned to academies were more likely to combine academic and career-technical coursework and had substantially more exposure to career development activities, including work experiences connected with school.[65] These results confirmed that the academies did, in fact, provide a curriculum that combined academic with career-technical preparation.

A follow-up survey four years after students' scheduled high school graduation found that academy students reported significantly higher earnings than the control group ($1,358 a month on average, compared with $1,225 a month).[66] A subsequent follow-up, eight years after scheduled graduation, showed the difference persisted: students assigned to academies had average monthly earnings of $2,112, compared with $1,896 for the control group.[67] Separated by gender, the difference in both follow-up surveys was significant among males but not among females. The greater earnings are plausibly attributed to academy students' having more career-technical courses, work experience, and other career development activities while they were in high school.

The follow-up data revealed no difference between the academy and non-academy groups in the share who had received high school diplomas or in postsecondary educational attainment. In short, career academies evidently improved students' preparation for work, while neither improving nor diminishing postsecondary education outcomes.[68]

Incorporating Performance Measures into Funding Formulas

States' educational funding arrangements obviously should not ignore the number of students in a school district, but these arrangements can and should take into account other information. States could, for example, reward districts or other education providers for accomplishing certain outcomes. The point would be to focus the attention of education providers on achieving those outcomes, not just on keeping students in attendance. Outcomes for which funding might be allocated include progress toward mastering academic skills and concepts, attaining a high school diploma, demonstrating civic competence (such as by understanding a voter information booklet or oral arguments in a jury trial), and gainful employment or enrollment in postsecondary education (or both) at ages eighteen to twenty.

Tying funding to student outcomes poses some obvious challenges. First, the numbers of teenagers achieving desired outcomes depend on many factors that education providers cannot control, including students' socioeconomic background and local labor market conditions. The problem, however, is not insoluble. Researchers have developed reasonably good statistical models for measuring "value added" by education.[69] These models can take into account each student's circumstances and past level of performance, so that education providers could be rewarded for student achievement beyond what would be predicted by past

performance and other factors. Some states are now using such models as part of accountability under No Child Left Behind.[70] Statistical methods for measuring value added are also being developed in the context of new experiments with performance-based pay for teachers.[71]

Developing valid outcome measures poses another challenge. Current accountability policies focus mainly on test scores, which are presumed to reflect some of the academic skills and concepts necessary for economic self-sufficiency and responsible citizenship.[72] Other measures would also be needed to determine whether the collective goals of education are being met. Earning a high school diploma, for example, is associated with economic self-sufficiency, because individuals without such diplomas are at an ever-increasing disadvantage in the labor market and have very little access to higher education.[73] Most states now require that students pass examinations before graduating from high school to ensure that the diploma represents a certain level of academic proficiency. Further evidence of economic self-sufficiency would require collecting employment data after high school, as some states already do, though not all have yet developed the capability. Enrollment in postsecondary education could be ascertained in part through the National Student Clearinghouse,[74] but the coverage would have to be expanded. Linking students' records over time requires privacy safeguards. Finally, direct evidence of civic competence would require developing new measures, such as understanding voter information guides or arguments in a jury trial.

Another challenge with any incentive scheme is determining the appropriate locus of responsibility. In a large school district, the incentive provided by performance measures applied to the entire district would become too diluted to affect behavior in individual schools and classrooms. But if the units held accountable are too small, they have an incentive to push problems, such as disruptive or low-performing students, onto other units. Some balance between school and district responsibility would be appropriate.

These challenges are not insuperable. The benefit of attaching some funding to student outcomes would be to give districts and other education providers a direct incentive to use students' time more productively.

Easing the Teacher Quality-Quantity Quandary by Involving More Adults

Funding education based in part on outcomes may also provide relief for the teacher quality-quantity conundrum by allowing more adults to become involved in educating teens.

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Adults in workplaces are one educational resource for teenagers. Career-technical education (CTE) often has included structured work experience, called cooperative education, or "co-op."[75] The co-op supervisor in the work setting collaborates with the CTE teacher in defining a student's learning objectives, making sure the student has the

opportunity to learn what is intended and evaluating the student's performance at the end. Unlike employers in regular jobs that most high school students find outside of school, co-op employers take explicit responsibility for supporting students' learning. Accordingly, although jobs outside of school sometimes conflict with schoolwork, this conflict is attenuated in co-op jobs.[76]

"The Met" is an example of a school where adult "mentors" in workplaces become an integral part of a young person's education.[77] Under the banner "One Student at a Time," The Met schools assign each student an adviser to help develop an individual learning plan intended to achieve academic objectives such as reading, writing, public speaking or facilitation, problem solving, data collection and analysis, scientific reasoning, computer science, civics, and conflict resolution. The learning plan maps out which goals will be pursued in various settings, including classes at The Met or at local colleges, and extended internships and internship projects. As in traditional co-op, the workplace mentors collaborate with students' advisers to plan, support, and document students' learning. The Met has not yet been rigorously evaluated, but it does illustrate the possibility of involving adults outside schools in teenagers' education.

Homeschooling could also help to ease the shortage of classroom teachers by involving parents or guardians in a bigger part of their students' education. The number of homeschooled students is still small but appears to be growing fast.[78] Acceptance of the idea by the American public also seems to be growing: between 1985 and 2001, the share of families who approved of homeschooling rose from to 16 percent to 41 percent.[79] Further development of Web-based curriculum may accelerate yet more the growth of homeschooling.

Involving adults other than teachers in educating teenagers raises important questions. One is how to ensure that these other adults are qualified to guide teenagers learning mathematics, English composition, science, languages other than English, and other subjects at the level expected in high school. Another is how to combine workplace mentors, parents, and specialized subject teachers in a team that supports student learning. Programs like The Met provide starting points in the search for more effective educational solutions for teenagers. In the next section I discuss two other such programs—Check & Connect and the Quantum Opportunities Project.

Educating Teenagers outside the School Building

Allowing more education to take place outside of schools may contribute directly to preparation for citizenship by expanding service-learning and civic engagement projects, which involve teenagers as volunteers providing various kinds of service to the community.[80] And internships in workplaces may contribute directly to preparation for economic self-sufficiency. Providing for more learning to take place outside the school building may promote academic achievement for some teenagers who do not thrive in conventional classrooms and for students who face academic and social challenges when they move from one school to another. Further development of education outside of schools can build on existing models of mentoring and increased use of the Internet.

Mentors can maintain a personal connection with a teenager even if the student moves to a different school, drops out, or leaves the state—thereby addressing the problem of

student mobility. Mentoring of some kind has become a common feature of many high school improvement models, including some like First Things First and career academies that offer good evidence of positive impact on students. Some programs have taken this a step further by keeping mentors in contact with students even if the students leave. For example, researchers at the University of Minnesota developed a program called Check & Connect, which "is implemented by a person referred to as a monitor or mentor. The person is a cross between a mentor, an advocate, and a service coordinator whose primary goal is to keep education a salient issue for disengaged students and their teachers and family members. The monitor-mentor works with a caseload of students and families over time (at least two years) and follows the caseload from program to program and school to school."[81]

Mary Sinclair and several colleagues have reported findings of two random-assignment evaluations of Check & Connect.[82] A 1998 study of ninth graders found 9 percent of students assigned to the program dropped out of school by the end of the year, compared with 30 percent of the control group. A 2005 study reported dropout rates of 39 percent over four years of high school for students assigned to Check & Connect, compared with 58 percent for the control group.

Another program that includes mentoring for students who drop out or move from school to school is the Quantum Opportunities Project (QOP, pronounced "quop"). QOP combines educational, developmental, and community service activities to support high school completion by entering ninth graders who appear to be at risk. Each participant has an adult counselor who acts as case manager and advocate. In theory, and often in practice, counselors are accessible to students by telephone twenty-four hours a day, seven days a week. Participants remain in the program whether they change schools, drop out, become incarcerated, or move out of state. The program's motto is, "once in QOP, always in QOP."

QOP has been the subject of two separate, multi-site, long-term evaluations in which students were randomly assigned to treatment and control groups. Andrew Hahn and associates at Brandeis evaluated the Ford-funded QOP pilot program in five cities from 1989 to 1993 and found a significant positive impact of QOP on high school completion.[83] Allen Schirm and colleagues at Mathematica evaluated a second QOP demonstration funded by Ford in two cities and the U.S. Department of Labor in five cities from 1995 to 2001. The Mathematica evaluation also found positive short-term effects, though the effects were smaller than those in the Brandeis study.[84] Mathematica's final report, based on findings when study participants were twenty-two to twenty-five years old, found no overall effect on high school completion, engagement in postsecondary education or training, or employment. But for the two-thirds of the sample who were age fourteen or younger when entering ninth grade, QOP did increase the likelihood that a student received a high school diploma or GED. It also increased postsecondary educational attainment and success in vocational or technical school and the military.[85]

The evaluations were not designed to detect which elements in QOP had the most impact. Still, QOP and other programs illustrate that mentoring for students who leave school or move from one school to another can help the students overcome the limitations of place-based schools.

Better use of the Internet also can make it possible to move education outside of the high school building, by providing access to the same curriculum from any place with Internet access. Many high school courses, and complete programs, are now offered online. According to the *New York Times,* the largest Internet public high school in the country is the Florida Virtual School (FLVS).[86] Founded in 1997, FLVS offers more than ninety courses for grades six to twelve.[87] Other providers of high school courses online include Brigham Young University, Apex Learning, Plato Learning, and Cyber High.[88]

Internet-based curricula are already being used in regular schools. Growing numbers of high schools are turning to the Internet for help with "credit recovery," allowing students to meet graduation requirements by taking online courses to make up for courses they missed or failed.[89] NCES commissioned a survey in 2002–03 to estimate the prevalence of various forms of distance learning in K–12 schools, including courses via Internet. More than one-third of public school districts, and 39 percent of public high schools, reported having students enrolled in distance education. High schools accounted for an estimated 76 percent of the students enrolled in distance education. Most of the courses were in standard academic subjects, including some at the Advanced Placement or college level. The most common technology reported was two-way interactive video (55 percent). Internet courses using asynchronous computer-based instruction (47 percent) were more common than those using synchronous computer-based instruction (21 percent). Entities providing distance education included districts themselves, cyber high schools within the districts, regular schools, and online providers outside the districts.[90]

A 2005 report by Learning Point Associates found that twenty-one states had established online programs, primarily at the high school level. All relied on the school or district to provide support for students, and all were reporting rapid growth. Policies regarding funding, quality assurance, and student assessment were still under development in most of these states.[91]

I was unable to find any random-assignment evaluations comparing online learning and classroom instruction at the high school level, but a review of existing studies using non-random comparison groups concluded that online education is at least as effective as classroom instruction.[92] And online education will become more powerful as it incorporates features such as simulation, visualization, interaction with data, and collaborative learning.[93]

Summary and Conclusion

Attending high school and spending the school day in a series of classes fulfilling Carnegie unit requirements will probably continue to be the predominant educational experience for most teenagers for the next several decades at least. This model works quite well for many students, but not for all. I have proposed four ways in which policy and research should seek to better achieve the goals of preparing all teenagers for civic participation, economic self-sufficiency, and further education. The first is to continue the trend toward integrating educational options that combine academic rigor with work-related relevance and provide young people with skills and experiences that pave the way to both college and careers. The second is to tie education funding to student outcomes to encourage teaching and learning formats that use students' time more effectively and are less daunting for teachers. The

third is to involve other adults, in addition to teachers, to help guide the education of teenagers inside and outside of school and provide some relief for the chronic shortage of teachers. And the fourth is to expand the options for educating teenagers outside of geographically fixed schools, both to provide more direct preparation for civic engagement and work, including work after completing college, and to better accommodate students who do not thrive in classrooms or who are geographically mobile.

If teenagers spent more time outside of school, where and how would they spend it? Growing numbers of teenagers already spend time in homeschooling, independent study centers, internships, and other settings that are quite different from the standard high school with its multi-period day.[94] Other options could include various kinds of service-learning that engage teenagers in civic activities or productive projects for community and public benefit. To minimize the risk that teenagers would waste time in such settings—as they now do in some alternative educational arrangements and in many conventional school classrooms—it is important to find ways to attach funding to results. Adults who are paid to educate teenagers, whether in conventional high schools or elsewhere, should have an incentive to focus students' time on achieving the collective goals of education.

Who would be responsible for teenagers in these expanded educational settings? Making education effective outside the place called school will require new kinds of paid professionals, in addition to parents or workplace mentors who volunteer to contribute time without pay. Unlike teachers in high school classrooms, these new professionals will not necessarily be subject specialists. Instead, they will act as academic advisers, learning coaches, student advocates, mentors, and college counselors. They will have to combine some of the skills of teachers, counselors, and social workers. One of these professionals might be responsible for about fifteen teenagers at a time, organizing for each student a combination of individual and group experiences that could include homeschooling or instruction in other non-school settings, online learning, internships, service-learning, and participation in conventional classes at high school, college, or other educational institutions. Funding for this kind of education would cover the salary of the adviser-counselor-mentor-coach, in addition to access to various specialized instructional services. If students move away, the adviser-counselor-mentor-coach could continue to work with them for a short time to help manage the transition, or for a longer time.

A challenge for policy and research will be how to prepare these new professionals. Programs like Check & Connect, The Met, and QOP provide some experience on which to build. In addition to proper preparation, these new professionals should also be guided by proper financial incentives, as I have already noted.

It is not possible to know in advance whether educational arrangements of this kind would be more effective than the current high school model in accomplishing the collective goals of education for teenagers. Given the limited success of today's model, however, some new initiatives along these lines seem well worth trying.

Endnotes

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64. From among the pool of applicants, MDRC randomly assigned some students to participate in the academy, and the others became the control group. As is often the case in field experiments, some who were assigned to the program did not actually participate. Twelve percent of the students assigned to academies never enrolled in one; another 22 percent left the academies while staying in high school. See James J. Kemple and Jason Snipes, *Career Academies: Impacts on Students' Engagement and Performance in High School* (New York: MDRC, 2000), p. 34. Adhering to strict experimental protocol, MDRC's analysis included all students assigned to academies in the treatment group, whether or not they actually started or stayed in an academy.

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71. Victor Lavy, "Using Performance-Based Pay to Improve the Quality of Teachers," *Future of Children* 17, no. 1 (Spring 2007): 87–110. Podgursky and Springer, *Teacher Performance Pay: A Review* (see note 52).

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