

12 RHETORIC AND REALITY: THE HIGH SCHOOL CURRICULUM

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In September 1989, President George Bush and the nation's governors issued a statement committing themselves to revitalizing American public education by establishing "clear national performance goals, goals that will make us internationally competitive."¹ Two of these goals focus on changing the basic curriculum in American schools to realize substantial educational gains by the year 2000. Goal 3 declares that "American students will leave grades four, eight, and twelve having demonstrated competency in challenging subject matter including English, mathematics, science, history and geography; and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment." Goal 4 states that "U.S. students will be the first in the world in science and math achievement."²

The presidential and gubernatorial commitment to these national performance goals is both historic and unprecedented, but this is hardly the first time that national leaders have focused their attention on the nation's schools and sought to alter the school curriculum substantially. In this chapter we analyze the historic significance of the current reform efforts represented by goals 3 and 4 and assess their relationship to previous attempts to reshape secondary education since the end of World War II.³ Educational historians generally have described the past half century of curricular reforms in terms of sharp swings between two diametrically opposite philosophical and educational poles, often represented as a recurring debate between proponents of the Committee of Ten report (1893) and advocates of the *Cardinal Principles of Secondary Education* (1918). In this model, the Committee of Ten position argues that "all high school students should be educated with equal seriousness in the great areas of human knowledge [i.e. traditional academic subjects], and that occupational decisions should be put off until after graduation, lest students from poorer

homes lose out." The *Cardinal Principles of Secondary Education* position, on the other hand, maintains that the focus of the high school should be on the "nature and the needs of students" rather than on the often difficult and arid demands of academic disciplines.⁴ From this perspective "education was considered not so much a training and disciplining of the mind as a process of developing social and civic awareness and responsibility."⁵

Indeed, historians who agree on little else accept that model of curriculum change as particularly useful in describing all of the curriculum reform efforts up to and including the current campaign to establish a core curriculum for all students. We begin this essay with a brief overview of that picture of reform and counter-reform. In the second section, however, we challenge that conventional swinging pendulum model of high school curriculum change through analyses of a series of national surveys conducted largely by the U.S. Office of Education. In the third section, we focus on science and mathematics course taking by analyzing additional surveys of enrollments in those subject areas. Finally, we assess the curriculum reforms embodied in the national goals and argue that, despite similarities to earlier back-to-basics movements, this new effort seems to mark a major break with past campaigns in two respects—in its recommended core course of study for all students and its setting of clear empirical standards for knowing if and when the reform has been a success.

CURRICULUM CHANGE IN AMERICAN SECONDARY EDUCATION, 1945–1992: THE CONVENTIONAL WISDOM

Almost every account of the modern history of the American high school describes curricular changes in terms of dramatic swings between two diametrically opposed educational and philosophical poles.⁶ To demonstrate precisely how our work differs from that of other scholars, we begin by presenting this conventional model. Historians generally agree that sometime in the 1920s, as high school enrollments rose dramatically, the curricular pendulum swung away from the vision of the Committee of Ten toward that of the *Cardinal Principles*. High schools increased both the number and types of courses they offered, introduced curricular tracks that provided students with vocational programs that required fewer academic classes for graduation, and essentially began to shift their focus from the "needs of society" to the "needs of youth."⁷ A sharp drop in educational resources during the 1930s caused a brief hiatus in this trend, even in the face of rising enrollments, as schools were forced to cut offerings in vocational education, art, and music. During World War II, despite protests from such defenders of the academic tradition as William C. Bagley and Isaac L. Kandel, the trend toward programs that stressed the practical resumed apace as educators joined the war effort by emphasizing

vocational education and preinduction training over academic course work in the high schools.⁸

After the war the debate over the high school curriculum revived with the publication of two new studies, Harvard University's *General Education in a Free Society*, which reaffirmed many of the ideas espoused by the Committee of Ten, and the Educational Policy Commission's *Education for ALL American Youth*, which called for a still stronger commitment to the practical curriculums of the Cardinal Principles. Amid this debate, the U.S. Office of Education's Division of Vocational Education invited a group of educators to Washington to discuss the growing number of high school students believed by many school administrators and teachers to be ill-suited for either the college preparatory or the vocational track. The high point of this conference was the Prosser resolution, a ringing reaffirmation of the ideals of the Cardinal Principles.⁹ The resolution declared that

it is the belief of this conference that, with the aid of this report in its final form, the vocational school of a community will be able better to prepare 20 percent of the youth of secondary school age for entrance upon desirable skilled occupations; and that the high school will continue to prepare another 20 percent for entrance to college. We do not believe that the remaining 60 percent of our youth of secondary school age will receive the life adjustment training they need and to which they are entitled as American citizens—unless and until the administrators of public education with the assistance of the vocational education leaders formulate a similar program for this group.

In essence, this life adjustment education "consisted of guidance and education in citizenship, home and family life, use of leisure, health, tools of learning, work experience and occupational adjustment."¹⁰

Educators enthusiastically embraced this program and, historians contend, by the mid-1950s life adjustment education had been adopted in "thousands of schools throughout the land."¹¹ This triumph, however, did not go uncontested. As early as 1949, Mortimer Smith published *And Madly Teach*, which denounced the deterioration of academic standards in secondary education and called on the schools to reassume their "historic role as moral and intellectual teacher." Smith's book was only the first in a series of impassioned attacks by proponents of the traditional academic curriculum on the changing character of the high school curriculum. By far the most influential of these works, Arthur Bestor's *Educational Wastelands*, demanded that American high schools return to the teaching of "disciplined intelligence" and proclaimed that "schools exist to teach *something* and that this something is the power to think."¹²

Clashes between these critics and the defenders of the educational

status quo dominated both the scholarly literature and, frequently, the popular press in the mid-1950s. Nothing, however, increased the intensity nor broadened the scope of these debates more than the launch of the Sputnik satellite by the Soviet Union in October 1957. Beyond its clear military and technological significance, Sputnik had a profound influence on the great educational debates of the mid-1950s. The successful launch seemed to indicate that the Soviet Union had surpassed the United States technologically, a situation that cast serious doubts on the condition and quality of American education. Indeed, Sputnik seemed to give credence to the arguments of such critics as Smith and Bestor that life adjustment and similar programs had led to a serious decline in the quality of secondary schools. Other critics of the public schools, such as Admiral Hyman Rickover, took these arguments farther and maintained that the deterioration of secondary education had contributed to our inability to compete successfully with the Soviet Union.¹³

In the late 1950s, as a result of pre- and post-Sputnik criticism, historians conventionally agree that the curricular pendulum swung back toward greater emphasis on rigorous academic standards with renewed interest in the quality of math, science, and foreign language education. In 1958, the federal government threw its weight behind these efforts by passing the National Defense Education Act, which directed money toward improving achievement in math, science, and foreign languages. In addition, early in 1959 James B. Conant, former president of Harvard University, published a best-selling book, *The American High School Today*, which called for secondary schools to reestablish strong academic curriculums and to sort students more efficiently by ability. Schools could thus train the best and brightest to realize their full potential while at the same time preparing the majority of students for suitable careers. In the next few years, these efforts to improve academic standards were aided by groups of leading scientists and scholars who received grants from the National Science Foundation (NSF) to produce new science and math curriculums, textbooks, workbooks, and other instructional aids, all designed to provide the most up-to-date knowledge in easily accessible formats. In all, these developments led historians such as Robert Church and Michael Sedlak to maintain that "the fifties and the sixties saw as profound a shift in thinking about education as had been seen since the Progressive era. The schools refocused on subject matter and intellectual discipline."¹⁴

This resurgence of commitment to academic excellence, however, was relatively short-lived. In less than a decade, such social and political developments as the civil rights movement, the War on Poverty, urban riots, student protests, the youth counterculture, and the long, bitter controversy engendered by the war in Vietnam combined to convince many civic and educational leaders that the previous reform effort was, at best, too limited

and, at worst, irrelevant to the larger crises facing the nation. In the late 1950s, the schools had been blamed for the failure to keep pace technologically with the Soviet Union and had been recruited as a key institution in the campaign to regain our scientific and military superiority. Ten years later new national crises stimulated a similar process as the schools again were blamed, this time for contributing to the nation's problems of race, poverty, and youthful alienation. As in the 1950s, the schools were also placed in the forefront of institutions designed to ameliorate those problems. By the late 1960s, as Diane Ravitch noted, the "educational pendulum began to swing back to a revival of progressivism."¹⁵

Like the first wave of progressive reformers in the early years of the twentieth century, these latter day progressives sought to transform society through educational innovation. Inspired by the works of such authors as A. S. Neill, whose book *Summerhill* described a school built upon the belief that children were "innately wise," reformers in the late 1960s and early 1970s attempted to uproot the rigid, academic, and bureaucratic system that they believed was destroying the spirit of the young and contributing to their widespread alienation.¹⁶

Rejecting the previous reform effort that focused on raising standards and improving the teaching of content courses, this new reform campaign attempted to implement sweeping changes in every aspect of American education, including breaking down the hierarchical relationship between teachers and students, eliminating distinctions between traditional subject areas, and placing experiential learning on a par with book learning. The spearhead of this reform campaign was the open classroom movement, which rested upon literally tearing down the walls of classrooms to create expansive learning environments in which teachers facilitated student learning by guiding young people to skills and knowledge rather than lecturing them into submission. Like earlier reforms based on student needs, such as life adjustment, these innovations placed a premium on making subjects relevant to students and providing students with a wide array of choices in determining their education. Few public schools adopted the most radical of these innovations, but many districts across the country adopted important aspects of this reform movement, particularly in terms of increasing the number of electives available for students and offering courses that appealed to students' interests.¹⁷

By the mid-1970s, this reform movement was running on empty. There was growing public dissatisfaction with the condition of American schools, especially over what appeared to be the collapse of order and discipline within many schools and a decline in achievement levels of unprecedented proportions. In the public mind, the most telling evidence was a steady decline since 1963 in the average scores on both the verbal and mathematical sections of the Scholastic Aptitude Test and the similar

(though less steady) fall over the same period in the composite scores on the American College Test. By 1975, there was a growing public demand for a return to basics, in terms of both traditional discipline and attention to fundamental academic subjects.¹⁸

In addition, policy makers in the federal government added their voice to the growing chorus of discontent. In the early 1970s, the Nixon administration, concerned over evidence of declining productivity in the nation's economy, launched Career Education, an ambitious, federally subsidized program designed to introduce students to "the world of work" by familiarizing them with career opportunities and helping them prepare for employment while still in school. Interestingly, Career Education, like the back-to-basics movement, also represented an attack on the amorphous general track in which most of the "student needs" courses were found. In his first report to Congress in 1971, U.S. Commissioner of Education Sidney P. Marland declared, "We must eliminate anything in our curriculum which is unresponsive to either of these goals [higher education or employment], particularly the high school anachronism called the 'general curriculum,' a false compromise between the college preparatory curriculum and realistic career development."¹⁹

Throughout the late 1970s and early 1980s, concerns about the condition of education in the United States continued to grow. In April 1983, the curricular trend represented by the back-to-basics movement received an enormous push in the form of a brief but powerful document published by the U.S. Department of Education, *A Nation at Risk*. In ringing terms, this report warned that "the educational foundations of our society are being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people . . . If any unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war." Citing such evidence as the unbroken decline of SAT scores and denouncing such common aspects of American high schools as the "cafeteria style curriculum," the authors of *A Nation at Risk* issued an educational call to arms.²⁰

The report had an immediate and profound effect on educational debates. Indeed, as early as June 1983 the *New York Times* commented that *A Nation at Risk* had pushed education "to the forefront of political debate with an urgency not felt since the Soviet Satellite shook American confidence in its public schools in 1957."²¹ Some recent commentators noted that many of the recommendations for improving American schools that followed *A Nation at Risk*, such as bolstering curriculum standards, raising high school graduation requirements, and improving teacher certification programs, seemed to have been recycled directly from the reports that appeared soon after the launch of Sputnik.²²

Certainly, one area in which such comparisons seem valid is in the

effort by post-*A Nation at Risk* reformers to overturn what they believed were the worst abuses of the previous wave of reform, especially the proliferation of course options for high school students. By late 1986, for example, forty-five states and the District of Columbia had raised their high school graduation requirements, forty-two states had increased math requirements, and thirty-four states had bolstered science requirements. In all, the sweeping nature of these changes and the rapid rate at which they were adopted seemed to make the current effort the most successful of any modern curriculum reform campaign.²³

As we noted, this picture of dramatic pendulum swings in a series of great debates over the American curriculum is widely accepted by historians. We do not take issue with this general description of the debates or with the accuracy of the positions attributed to key actors and interest groups. The key question is whether these rhetorical battles actually led to the curriculum reforms attributed to them. Historians have made claims about curriculum change based largely on what people said about curriculum reform. Few historians, however, have made any attempt to analyze and interpret changes in the course-taking patterns of American high school students that have been implied by the great curriculum debates. This failure to seek empirical support for the dominant swinging pendulum model of interpretation is particularly surprising in light of the fact that the U.S. Office of Education has been collecting and publishing data on the course-taking behavior of American secondary students for nearly a century.²⁴ We now turn to an analysis of these data in an attempt to assess the validity of the conventional wisdom as a description of the reality of high school curriculum reform.

SUBJECT ENROLLMENT CHANGES IN AMERICAN EDUCATION, 1928-1987: INTERPRETING THE DATA

The U.S. Office of Education has shown an interest in the course enrollments of American high school students since the late nineteenth century. Enrollments in Latin and Greek were collected and reported in the 1880s, and by 1890 the list of courses had expanded to include mathematics, science, history, modern foreign languages, and so forth. This data collection on course enrollments became an annual series that continued as such until 1906. Similar surveys were carried out in 1910 and 1915, but all of these surveys reported national enrollments only for a limited list of subjects and did not fully capture the vast curriculum expansion that was actually occurring during the opening decades of the new century.²⁵ A much longer listing of subjects and a more detailed report of findings characterized the 1922 survey and the subsequent surveys of 1928, 1934, 1949, 1961, and 1973, the last of the series.²⁶ Between 1922 and 1973, the

number of distinct courses reported to the USOE rose from about 175 titles to over 2,100.²⁷ Although it is impossible to sort out the extent to which this increase represented new courses or merely variations or elaborations on older themes, its magnitude makes it difficult to avoid the impression of curriculum expansion running amok.²⁸

These surveys provide historians of the American high school with a series of increasingly detailed and trustworthy snapshots of high school course enrollments spanning the years from 1890 to 1973. In addition, researchers under contract to the National Center for Education Statistics have gathered similar data, usually from student transcripts, which can be linked to the earlier studies to provide a sweeping picture of high school curriculum development in the twentieth century. Unfortunately, these data have rarely been utilized by scholars in describing the modern history of secondary education generally or the high school curriculum specifically. Indeed, almost all of the works upon which the conventional wisdom rests have ignored these data completely.²⁹

Table 12.1 presents the USOE data from 1928 to 1973 as well as data from a 1982 transcript study. It details changes in the relative share of high school course enrollments in different subject fields, compares the traditional academic subjects with nonacademic subjects, and includes the average number of courses taken per student for each survey year. Perhaps the most striking thing about this table is the degree to which it challenges the conventional account of sharp pendulum swings between the opposing curricular poles. Contrary to the conventional picture of reform and counter-reform, these data reveal one long pendulum swing toward non-academic subjects that continues for four decades. Despite the fierce rhetorical battles about curriculum between the 1930s and the 1970s, for us the most impressive feature of these data is not change but constancy. The data reveal a steady drop in the academic share of subject enrollments that begins in 1928 and continues unabated until at least 1961. This drop includes a sharp decline in the study of foreign languages and more modest declines in mathematics and science. The growth of the nonacademic share of the curriculum can be gauged by one startling fact: in 1910, the share of high school work devoted to *each* of the five basic academic subjects—English, foreign language, mathematics, science, and history—enrolled more students than *all* of the nonacademic subjects combined. Moreover, these data do not reveal the more subtle changes within academic subjects, in which English courses were reorganized to relate “literature and life” and history and government courses were transformed into the social studies.³⁰ Finally, the decline in the share of academic subjects is offset by a huge increase in physical education enrollments between 1928 and 1934, an increase that continued steadily thereafter.

In addition to undercutting the swinging pendulum model of curricu-

TABLE 12.1 Percentage Distribution of Subject Field Enrollments in U.S. Public Secondary Schools, Grades 9 through 12: 1928–1982

<i>Subject Field</i>	1928	1934	1949	1961	1973	1982
Academic						
English	19.1%	18.6%	18.4%	17.9%	20.1%	19.9%
Foreign language	9.5	6.9	4.0	4.3	3.9	3.3
Mathematics	12.8	11.1	9.8	9.9	9.2	11.2
Science	10.6	10.1	9.7	9.3	10.0	9.4
Social studies	15.2	15.5	17.4	15.6	16.2	16.9
Computers						0.4
Nonacademic						
Industrial arts	4.0	3.5	3.7	3.7	4.2	3.4
Trade and industry	0.6	0.7	1.2	0.7	0.5	2.3
Home economics	3.3	3.3	4.3	3.6	3.5	3.4
Business	11.4	11.3	10.5	8.9	6.8	6.7
Health and PE ^a	4.9	11.5	12.4	15.9	17.5	15.9
Music	5.2	5.0	5.4	6.6	4.7	3.1
Art	2.3	1.7	1.6	2.5	3.0	3.5
Agriculture	0.7	0.7	1.2	1.0	0.4	0.5
Other	0.4	0.2	0.4	0.2	0.2	
Academic	67.2	62.2	59.3	57.0	59.4	61.1
Nonacademic	32.8	37.9	40.7	43.0	40.7	39.0
Enrollments per Student	5.02	5.09	5.61	6.42	7.00	6.97

Sources: Recoded and adapted from U.S. Office of Education (USOE), *Biennial Survey, 1926–28*; USOE, *Offerings and Registrations, 1933–34*; USOE, *Biennial Survey, 1948–50*; Wright, *Subject Offerings, 1960–61*; Osterndorf and Horn, *Course Offerings, 1972–73*; West, Diodato, and Sandberg, *A Trend Study*.

^aIncludes safety, driver's training, and ROTC.

lum change, table 12.1 challenges several other assumptions widely held by historians of the American high school. First, as we have argued elsewhere, high school curriculum changes were more rapid during the Depression years than at any other period before or since. The drop in the academic share of course enrollments was steeper between 1928 and 1934 than at any other time. We believe the impetus for that change was the sharp slope of increase in high school enrollments, higher than in any previous period, and a significant shift in the social-class makeup of the high school population. In addition, the drop in the academic share and the rise of nonacademic personal development courses in the 1930s seem to indicate that the life adjustment movement did not initiate major curriculum changes but merely justified and rationalized trends that were already under way.³¹

Second, contrary to much recent historical interpretation, the relative decline in academic enrollments was not matched by increases in vocational enrollments, except perhaps during the brief period of World War II. Rather, a large proportion of the curricular shift is accounted for by increases in such personal development courses as health, physical education, and driver's training.³² We believe that this development was directly related to the negative assessment of both the academic and the vocational abilities of the new waves of students entering the high schools in the 1930s and after the war. Curriculum theorists from this era, such as Harl R. Douglas, routinely urged educators to design new programs to meet the needs of these new students, many of whom were "children of mediocre or inferior ability who lack interest in abstract and academic materials." What many historians fail to recognize, but the data in table 12.1 indicate, is that these students were tracked away not only from academic courses but also from vocational courses.³³

Third, the declining share of academic courses and the growth of personal development courses continued unabated until at least 1961. In other words, it appears that the demands for increased academic coursework during the Sputnik era debates had relatively little effect on overall student course-taking patterns. Last, it appears from table 12.1 that all of these historic developments were reversed some time after 1961, a development that we will return to later.

The data in table 12.1 seem strongly to support Arthur Bestor and other critics of the 1950s, who argued that the academic seriousness of the nation's high schools had been profoundly undercut since at least the late 1920s. Defenders of the high schools, on the other hand, routinely countered these arguments by pointing out that, during the very period that the critics identified as the years of decline, the actual numbers of young people studying academic subjects rose dramatically. To take but one example, while 84 percent of high school students were enrolled in a foreign language course in 1910, this amounted to only 739,000 students. In 1949, the percentage had fallen to a mere 22 percent, but this was 1.2 million students. Table 12.2 displays the actual enrollments in the same subject fields over the same years as table 12.1. Except for foreign language, enrollments in all subject fields showed increases at every data collection point between 1928 and 1973, and even foreign language enrollments increased in every period but 1934 to 1949.³⁴

The two different perspectives on the same data in tables 12.1 and 12.2 point up once more the sharp polarities in ways of viewing the purposes of the high school. If, as the 1893 Committee of Ten supposed, certain subjects are of more lasting value than others and if these are the subjects represented above as academic, then long-term declines in the *proportions* of students that are studying these subjects represent declines in educational

TABLE 12.2 Subject Field Enrollments (in thousands) in U.S. Public Secondary Schools, Grades 9 through 12: 1928–1982

<i>Subject Field</i>	1928	1934	1949	1961	1973	1982
Total 9–12 Enrollment	2,897	4,497	5,399	8,219	13,438	12,661
Academic						
English	2,776	4,266	5,576	9,438	18,911	17,716
Foreign language	1,377	1,575	1,200	2,293	3,659	2,953
Mathematics	1,859	2,532	2,958	5,224	8,608	9,850
Science	1,534	2,308	2,944	4,908	9,414	8,278
Social studies	2,213	3,540	5,265	8,226	15,224	15,008
Computers						344
Nonacademic						
Industrial arts	285	798	1,127	1,944	3,921	2,980
Trade and industry	92	158	369	365	484	1,874
Home economics	477	750	1,305	1,901	3,249	3,024
Business	1,656	2,588	3,194	4,706	6,410	5,874
Health and physical education	713	2,625	3,747	8,395	16,460	14,057
Music	754	1,149	1,625	3,473	4,461	2,733
Art	340	394	486	1,335	2,795	3,061
Agriculture	106	159	364	505	346	420
Other	62	38	124	91	103	80

Sources: Same as in Table 12.1.

quality. But if, as the proponents of the Cardinal Principles seemed to be asserting, every increase in the numbers of students attending high school also represents a significant decrease in the academic abilities of the student body, then a proportionate shift away from the academic subjects is fully justified.³⁵ In fact, from this perspective, this shift never seemed to be rapid enough or great enough to satisfy fully the needs of the expanding secondary school student body, and this seeming insatiability of demand for more and more courses explains why the critics of these trends were not much mollified by mere increases in enrollments in science, math, and so forth.

In addition, as John F. Latimer, one of the most perceptive critics of the high school in the 1950s, argued, focusing on the increase in numbers rather than the decrease in percentages is to accept a split-level education. Because educators believed that the majority of new students were less able than previous generations, they shunted them into less challenging courses rather than searching for new and more effective ways to teach these students traditional academic subjects. This belief shaped the direction of most high school curriculum reform after the 1930s and under-

girded the life adjustment movement. As table 12.2 reveals, while academic course enrollments increased, so did enrollments in less rigorous, nonacademic courses, courses that proponents of greater academic rigor did not think should be in the curriculum at all.

The terms of the debate about the high school curriculum, however, sharply altered in the early 1970s, when high school enrollment growth slowed; it finally began to drop in 1976. Instead of the constant enrollment increases in all subjects which served to soften the claims of those who decried the decline in academic course taking, there were now enrollment declines in nearly all subject fields. At the same time, however, the long-running drop in the academic share of course taking was reversed, and by 1982, even before *A Nation at Risk* appeared, the academic share had recovered to about the level of the mid-1930s (see table 12.1). Under these conditions, the debate took on a new urgency, and the question of *proportionate* enrollments, as contrasted to numerical increases, gathered more force.

Table 12.3 highlights what happened when the nation's aggregate high school enrollment reached its peak in 1976 and began to decline. This table

TABLE 12.3 Percentage of Public Secondary School Students (Grades 9 through 12) Enrolled in Subject Fields: 1928–1982

<i>Subject Field</i>	1928	1934	1949	1961	1973	1982
Academic						
English	95.8%	94.9%	103.3%	114.8%	140.7%	139.0%
Foreign language	47.5	35.0	22.2	27.9	27.2	23.3
Mathematics	64.2	56.3	54.8	63.6	64.1	77.8
Science	53.0	51.3	54.5	59.7	70.1	65.4
Social studies	76.4	78.8	97.5	100.1	113.6	118.0
Computer science						2.7
Nonacademic						
Industrial arts	20.2	17.8	20.9	23.6	29.2	23.5
Trade and industry	3.2	3.5	6.8	4.4	3.6	15.7
Home economics	16.5	16.7	24.2	23.4	23.1	23.9
Business	57.2	57.6	59.2	57.3	47.7	46.4
Health and physical education	24.6	58.4	69.4	102.1	122.5	111.0
Music	26.0	25.5	30.1	42.3	33.2	21.6
Art	11.7	8.6	9.0	16.2	20.8	24.2
Agriculture	3.7	3.5	6.7	6.1	2.6	3.3
Other	2.1	0.9	2.3	1.1	0.8	1.5

Sources: Same as in table 12.1.

displays the percentage of all students in grades 9 through 12 who were actually enrolled in, for example, an English or a mathematics course during each data collection year from 1928 to 1982.³⁶ Looked at in this way, some of the trends are consistent with those mentioned earlier, for example, the rise in enrollments in health and physical education, but others appear to be quite different. This table shows a clear effect of the 1950s concern over science, math, and foreign language. Not only the numbers of high school students enrolled in these fields but also the proportion of students increased.³⁷ Surprisingly, however, the growth in actual percentage enrollments in these subjects reversed over the next decade, the very period in which the new math and science curriculum designs sponsored by the National Science Foundation were being implemented in many of the nation's high schools.³⁸

Another trend that appears in table 12.3 suggests that the career education movement of the Nixon years was quite effective. This movement was aimed at strengthening the vocational preparation function of the schools and focusing the attention of young people on the "world of work." It shows in these data as a dramatic increase in the proportion of high schoolers enrolled in courses in the trade and industry category, from around 4 percent to over 15 percent in less than a decade. Part of this was a shift of the orientation of courses from nonvocational industrial arts and home economics to courses with a specific vocational orientation; even when these three fields are combined, however, there was still an increase from a total of 57 percent of students enrolled in 1973 to 63 percent in 1982.

One other point to note about the trends shown in table 12.3 is the increase in the proportion of students enrolled in courses in English and social studies. We believe these are only apparent increases, artifacts of the way the USOE data were tabulated and displayed. As they are presented in tables 12.1 to 12.3, every course enrollment, regardless of the length of the course, is counted as a unit. This means, for example, that a high school offering a series of one-semester English courses such as American Literature and British Literature will appear to have twice the enrollments in English of a high school offering only year-long courses such as English 1, English 2, English 3, and English 4. In the above tables, then, subject fields in which many year-long courses have been divided into semester-long or shorter courses with different titles, such as English and social studies, are shown to have somewhat exaggerated enrollments compared to fields, such as foreign language and mathematics, in which these divisions have not occurred. This is also the most likely explanation of the increase in course enrollments per student shown in table 12.1. Rather than students in 1973 taking 40 percent more courses than students in 1928, it is far more

TABLE 12.4 Ratios of Enrollments in Year-Long Courses to Enrollments in Semester-Long or Shorter Courses by Subject Fields in U.S. Public Secondary Schools, Grades 9 through 12: 1960, 1972

<i>Subject</i>	1960	1972
Academic		
English	93/7	63/37
Foreign language	100/0	95/5
Mathematics	90/10	91/9
Science	97/3	89/11
Social studies	81/19	58/42
Nonacademic		
Industrial arts	78/22	67/33
Trade and industry	90/10	81/19
Home economics	84/16	49/51
Business	88/12	75/25
Health and physical education	75/25	59/41
Music	100/0	79/21
Art	68/32	66/34
Agriculture	96/4	89/11

Sources: Wright, *Subject Offerings*; Osterndorf and Horn, *Course Offerings*.

likely that 20 percent of year-long courses had been split into semester-long offerings over those forty-five years.

Table 12.4 illustrates the ratios of year-long courses to semester-long or shorter courses in the fourteen subject fields for 1960–61 and 1972–73. It not only shows a significant shift toward shorter courses over the decade of the 1960s, but also illustrates that this development was quite uneven across the subject fields, with English and social studies leading the way in the academic subjects and home economics and health and physical education leading in the nonacademic subjects.

Another way to control for this distortion is to consider changes in credits, rather than course enrollments.³⁹ A data array based on these measures would partly rectify the distortion just described, since half-year courses in basic subjects receive only half the credit of full-year courses. Furthermore, these data provide two additional clues to curriculum change: (1) whether the assignment of credit for particular subjects has changed over time and (2) just what courses the average student or selected students have studied over the course of a four-year high school education. Data of this kind have been supplied by a series of studies of the transcripts of various cohorts of graduating seniors.⁴⁰

The first of these transcript studies was done by the USOE in 1958 at the height of the national anxiety over the launching of Sputnik. The most recent were sponsored by the NCES in 1987 and 1993 and were designed to check the effect on high school course-taking patterns of *A Nation at Risk*. These and other transcript data are displayed in table 12.5. One point to note is that, by credits, the academic share of the distribution is considerably greater than the academic share of course enrollments, but, as we suspected, the shares represented by English and social studies are smaller. In the more recent data, differences between the distribution of credits and the distribution of course enrollments narrow considerably. It was common in the 1940s and 1950s for high schools to grant no academic credit or only partial credit for courses in health, physical education, and music; by the 1970s, however, it had become common to grant full academic credit for such courses.⁴¹ This is also the most likely explanation for the increase in the average total credits attained by students between 1958 and 1982. It is more likely that, rather than lengthening their school days or otherwise requiring more total coursework on the part of students, high schools have increasingly granted credit for formerly noncredit activities. Clifford Adelman, whose study of changes between 1969 and the mid-1970s controlled for differences between schools in the length of periods, also noted what he called "a devaluation of time in the academic curriculum" resulting from "conscious decisions to raise the amount of credit for nonacademic courses or to mandate wholly new courses in the secondary curriculum within the same total amount of school time."⁴²

Whether one considers credit distribution or enrollment distribution, the trends are the same. But the two perspectives point to different conclusions about when the low point in academic enrollments was reached. Based on enrollments, the nadir is reached some time between 1961 and 1973; with respect to credits, it seems to be reached some time in the late 1970s. Possible reasons for this difference, as mentioned earlier, are the reorganization of full-year courses into courses of a half-year or less, the increase of mandated requirements in such nonacademic fields as health and physical education, and the granting of full academic credit toward graduation for such courses.

In all, despite the variety of interpretations supported by these data, several conclusions seem warranted. First, it is quite clear that the proportion of the high school curriculum claimed by the academic subjects, whether measured by course enrollments or credits, declined significantly from the late 1920s until some time in the late 1960s or early 1970s. The available data do not permit us to date the low point of academic enrollment share more precisely. Second, it is equally clear that, up to at least

TABLE 12.5 Percentage Distribution of Credits Earned by High School Graduates by Subject Field, 1958–1990

<i>Subject Field</i>	1958	1969	1973	1976–81	1982	1987	1990
Academic							
English	24.2%	20.3%	18.4%	18.8%	17.9%	17.5%	17.3%
Foreign language	6.0	5.8	4.8	3.6	4.9	6.3	6.6
Mathematics	12.7	12.7	10.6	11.5	12.0	12.9	13.1
Science	11.7	11.2	12.1	10.6	10.3	11.3	11.9
Social studies	18.9	16.5	16.5	15.4	14.6	14.5	14.6
Computer science	0.0	0.0	0.0	0.0	0.5	1.7	2.0
Nonacademic							
Industrial arts	3.2	1.9	0.7	2.1	6.1	5.0	4.7
Trade and industry	0.4	5.2	5.4	5.3	3.1	2.7	2.0
Home economics	4.0	1.3	3.8	2.6	4.8	4.0	3.6
Business	8.5	7.3	7.7	8.5	4.1	3.4	2.8
Health and physical education	4.4	9.1	11.6	10.5	9.1	8.6	8.8
Music	2.3	2.5	4.6	3.3			
Art	1.1	1.9	3.2	1.6	6.5	6.2	6.6
Agriculture	0.7	0.7	0.5	0.7	0.8	0.7	0.6
Other	2.1	4.1	0.1	5.0	5.4	5.1	4.4
Academic	73.5	66.5	62.4	59.9	60.2	64.2	65.5
Nonacademic	26.7	34.0	37.7	39.6	39.9	35.7	34.4
Average credits per graduate	15.54	NA	NA	NA	21.23	23.01	23.5

Sources: Adapted by the authors from Greer and Harbeck, *What High School Pupils Study*; Adelman, "Devaluation"; Osterndorf and Horn, *Course Offerings*; Westat, *Tabulations*.

1976, both the total numbers of students and the proportion of students taking courses in academic subjects increased, except for foreign languages. The same can be said of the nonacademic subjects, and there is the rub. Whether one is dismayed or cheered by these contrasting perspectives on course enrollments depends entirely on one's view of the purpose of secondary education. For those who believe that the primary purpose of the school is to educate youth "with equal seriousness in the great areas of human knowledge," the curriculum changes of the middle fifty years of this century were a disaster. For those who see the school as responsible for meeting a wide range of youth needs and problems, as well as for "developing social and civic awareness and responsibility," the picture until recently has been much brighter. This, of course, is the long-running debate we have described throughout this chapter. What, if anything, do the data have to say about the specifics of this debate?

Perhaps the most intriguing finding here is that neither the life adjustment movement nor the conservative reaction to it in the 1950s seems to have had the profound effects on the high school curriculum usually attributed to them. Instead, the changes over the period from 1934 to 1961 seem to us to be a slow working out in practice of a basic educational philosophy that was in place long before either of these reform movements was set in motion. That philosophy asserts that the high school curriculum should be based on an analysis of the needs of the students who attend the school. Over the long period of enrollment increase, it was assumed that each new group to enter the high school represented a distinct set of different needs. In this view, then, enrollment expansion always requires curriculum expansion. Even when voices have been raised to challenge the needs-based approach to curriculum, as during the Sputnik era, the school has responded by identifying that group *within* the student body for whom it felt the proposed reforms were appropriate (i.e., in that particular case, gifted and talented children). This explains why the late 1950s reforms did not constitute a "profound shift in thinking about education" that "refocused on subject matter and intellectual discipline," but rather were both modest and short-lived.⁴³

Although the life adjustment movement and the conservative reaction seem to be less potent than historians have claimed, the career education movement and the excellence movement of the 1970s and 1980s seem to have been considerably more effective than previously realized. Career education resulted in a very large increase in the share of high school students enrolled in courses in trade and industry between 1973 and 1982. The excellence movement, while considerably more complex, seems clearly to have had the result of reversing the very long trend toward non-academic education and to have restored the academic share of course taking to about its 1930 level. Importantly, this reversal began well before A

Nation at Risk, though this report seems to have given considerable stimulus to it.

Finally, the data reveal at least two trends that historians have not discussed at all—the tremendous increase in school time and credit devoted to health and physical education and the decline of business or commercial courses. The conventional view of physical education enrollments has been that they rise after every war in which the nation is involved, since wars and the draft demonstrate the low levels of physical condition of the American population. The data suggest otherwise—that enrollments in physical education have been rising unremittingly since the 1930s. Historians have described the business curriculum as the most popular and effective segment of vocational education, particularly for young women, but they have not followed its development beyond the 1930s. The USOE data show that both the business share of the curriculum and the percentage of students enrolled in business courses declined quite sharply between 1934 and 1949, leveled off for about two decades, then began another sharp decline.

These conclusions are based largely on a macro-view of the high school curriculum, shifts in nationally aggregated enrollments between broad subject families. To understand more completely the interaction between curriculum reform movements on the one hand and changes in the course-taking behavior of high school students on the other, we need a finer-grained analysis. For this, we turn to a more detailed look at two subject fields, science and mathematics.

CHANGES IN SCIENCE AND MATHEMATICS COURSE TAKING, 1949–1987

Since World War II, the subject fields of math and science have received extraordinary scrutiny, both by the participants in the great curriculum debates and by USOE staffers. During the debates of the Sputnik era, enrollments and achievement levels in math and science were carefully monitored, and the National Defense Education Act provided substantial funds for the improvement of teaching and for educational resources in these specific fields. The efforts of the National Science Foundation to get university professors involved in the development of new curriculum materials and approaches were aimed primarily, though not exclusively, at these subjects. More than twenty-five years later, *A Nation at Risk* also focused considerable attention on math and science as areas of crucial importance for the country's future economic competitiveness. Today, goal 4 of the National Goals continues this trend by calling for American students to be first in the world in these subject fields.

The U.S. Office of Education has reflected the national concern for developments in science and math, and this has resulted in more frequent and vigorous efforts to track enrollment and other changes in these subjects than in other fields. The office's activities actually began much earlier than most historians have supposed. In 1948, concurrent with its endorsement of the life adjustment movement, the office carried out a small-scale national survey of the teaching of science in public high schools. This was followed by a similar survey of mathematics teaching in 1952 and joint surveys of math and science in 1954, 1956, 1958, and 1962. From its general survey of course enrollments in 1961, the office calculated a select survey of math and science offerings. In addition, tables on math and science enrollments continued to be published in the *Digest of Educational Statistics* until at least 1965.⁴⁴

Two different rationales provided the impetus for this USOE series of studies. As the president's National Committee for the Development of Scientists and Engineers put it, "As our society depends increasingly on science and technology, it is important that all citizens have an understanding of the nature of science and mathematics. The continued security and growth of the United States in this age of technology require steady increases for many years to come in the Nation's supply of high quality engineers, scientists, and teachers of mathematics and the sciences."⁴⁵

These rationales, the need for greater scientific literacy in the general population and the need for an increasing supply of scientists, engineers, and mathematicians, have continued to dominate debate about science and mathematics in the high schools to this day. But encouraging enrollments in science and mathematics courses can have a number of different outcomes. For example, if it is desirable that all American high school students take three years of mathematics, does it matter whether the three years consist of general math, consumer math, and remedial math or algebra, geometry, and trigonometry? And if it matters, how can reformers be certain to produce the second pattern rather than the first? More important for our purposes here, given the evidence presented in table 12.3 that math and science enrollments rose as a consequence of the late 1950s back-to-basics movement and seem to be rising again in the 1980s, how are these increases distributed within the subject fields?

The data displayed in tables 12.6 to 12.8 permit us to address this last question by focusing closely on enrollment changes within the two subject fields.⁴⁶ Table 12.6, which lists the percentage of students in grades 9 to 12 enrolled in science and math courses between 1948 and 1963, highlights the increases in these two subject areas that took place during these years. Overall math enrollment rates rose from about 55 percent of those in grades 9 to 12 in 1948 to about two-thirds in 1963. Gains in science were more

TABLE 12.6 Percentage of Students, Grades 9 through 12, Enrolled in Science and Mathematics Courses: 1948-1963

<i>Subject Field</i>	1948-49	1954-55	1958-59	1960-61	1962-63
Mathematics	54.7%	55.5%	65.2%	63.9%	67.0%
General math	12.0	12.2	13.1	17.4	12.1
Elementary algebra	19.3	18.3	22.6	19.6	21.2
Plane geometry	11.1	13.6	12.5	11.7	14.5
Intermediate algebra	6.9	6.6	8.2	9.0	10.1
Solid geometry	1.7	2.2	1.4	2.1	0.7
Trigonometry	2.0	2.6	2.8	3.0	2.0
All other math	1.7	NA	4.6	1.1	6.4
Science	54.5	NA	59.6	59.7	59.9
General science	19.9	NA	20.2	22.2	18.2
Biology	18.4	19.7	21.4	21.7	24.7
Chemistry	7.6	7.3	8.4	9.1	8.5
Physics	5.4	4.6	4.8	4.9	4.0
All other science	3.2	NA	4.8	1.8	4.5

Sources: 1948 and 1960 are from the USOE general surveys of those years; 1954, 1958, 1962 are from Simon and Grant, *Digest of Educational Statistics: 1965 Edition*, 27.

modest. There were large increases in the number of students and even in the rates of enrollment in such rigorous courses as algebra, geometry, trigonometry, biology, chemistry, and physics. The most dramatic increases, however, were not in the most rigorous courses but in the so-called practical courses. As the author of the report comparing 1948 to 1960 noted, "Courses of a practical nature in everyday living continued to proliferate. . . . In mathematics, such courses as consumer mathematics, economic mathematics, mathematics for modern living, refresher mathematics, and terminal mathematics were reported. Science offered household biology, science for modern living, everyday physics, and consumer science, among others."⁴⁷

In other words, science and math enrollments reveal the same trend toward an increasingly split-level education that we described in the previous section. Increases in enrollments in the rigorous science and math courses were matched and even outpaced by increases in less intellectually challenging courses. Why did this development not set off a cry of alarm in the U.S. Office of Education, which seemed to be attending closely to enrollment shifts and to be a leader in the call for a larger supply of scientists and engineers?

Careful reading of the reports of those years reveals an agency that is far more concerned with training an elite corps of scientists and mathe-

maticians than improving scientific literacy throughout the general population. Furthermore, the office fully accepted the premise that algebra, geometry, trigonometry, and calculus were appropriate subjects for some students but inappropriate for others. There was little genuine concern for the role of science and math in the general education of a citizen.⁴⁸ Indeed, rather than supporting the efforts of such critics as Bestor to bring more rigor into high school education, the tone of the reports was more critical of the critics than of the high schools. The 1952 report acknowledged that "enrollments in mathematics for general education have increased, but the enrollments in the college-preparatory mathematics has not kept pace with the growth of the high schools," but the office failed to keep abreast of this development, not even reporting the large increases in the teaching of remedial math between 1952 and 1972.⁴⁹ The office clearly endorsed the principle of the split-level curriculum, and this principle continued to hold sway in subsequent decades.

The massive USOE and NSF curriculum projects of the 1960s provide an excellent case in point. In the wake of the Sputnik scare, the National Science Foundation set out to develop new and more challenging curriculums in the sciences, mathematics, foreign languages, and social studies. Mainly taking the form of new teaching materials designed to replace traditional textbooks, these experimental approaches were adopted by many high schools in the early 1960s. Despite the substantial amounts of money spent on these projects and the publicity they received, the NSF projects boosted enrollments only modestly at best, and they seem to have had no lasting effect.⁵⁰

At the same time that high schools showed modest increases in some of the more rigorous math courses, they also showed increases at the other end of the difficulty spectrum, in the remedial and applied mathematics categories. In the sciences, modest declines in chemistry and physics were offset by increases in such lower level general science courses as physical science and earth/space science. Indeed, the authors of the report that considered curricular changes from 1960 to 1972 noted, "Although traditional academic courses still receive considerable emphasis, their prominence in the school curriculum has been noticeably eroded since the 1960-61 data were collected."⁵¹

This trend was partially caused by the shift in national priorities in the 1960s from the cold war demands for more scientists and engineers to preoccupations with domestic social problems, such as poverty and inequalities. During the decade of the 1960s, the attention of educators and policy makers alike turned away from the "needs of the talented few" to the needs of the disadvantaged child and the potential dropout. But the trend was also caused by the way in which the high schools adopted the

NSF curriculums. Schools targeted these curriculums toward the high-performing, college-bound students who probably would have taken all of the advanced mathematics and science courses the school offered regardless of the curriculum revisions.

As we argued in the previous section, the most important factor shaping the curriculum in this period was the continued growth of high school enrollments—from 8.2 million in 1960 to 13.4 million in 1972. Educators responded to these students as they had in the past by assuming that increased enrollments inevitably meant increasing numbers of low-ability students. Believing that these students weren't capable of mastering difficult course material, educators expanded the less-demanding general track and created less rigorous courses for these students. Thus, whether one looks at the humanities, the sciences, or mathematics, the dominant trend was toward rising enrollments and less challenging classes. As the authors of the report comparing 1960 to 1972 stated, "The emphasis on making a high school education available for every youth, as noted in the [1960–61] study, has continued, with added attention given to the lower ability groups. . . . Remedial courses were offered to one segment of the student population; another segment had access to advanced and college-level courses . . . Graduation requirements were relaxed in many schools, and elective courses became more prominent."⁵²

These trends continued over the next decade. Enrollment rates in both science and mathematics showed sizable gains, a 12 percent increase in the overall science enrollment rate and a more than 40 percent increase in mathematics. However, in both fields these increases were concentrated in lower level courses. The non-college preparatory mathematics courses showed over three times the gains of the college preparatory sequence, and in science, except for biology, the gains were mostly in general science courses (see tables 12.7 and 12.8). While the high schools were responding to the back-to-basics pressure for increased academic course work, they did so in a time-honored fashion, designing new courses with academic titles geared to students of middling or low attainments. Over this same period of rising enrollments in science and mathematics, some studies showed a drift from the academic curriculum into the general curriculum.⁵³ Achievement test scores continued to decline, even for the college-bound student.⁵⁴

During the most recent period, 1982–1990, enrollment rates in both science and mathematics continued to increase, but the pattern of these increases has been sharply different from that of previous increases. Enrollment in science increased at a faster rate than over previous years. Math increased as well, but at a slower rate. By far the most striking aspects of these changes, however, are the increases in the traditional academic courses—biology, chemistry, and physics; algebra, geometry, trigonome-

TABLE 12.7 Comparisons of Changes in Mathematics Course Taking in U.S. High Schools, 1961-1987

Subject Field	% of 9-12 Enrollment		% of 9-12 Enrollment		% of Graduates Receiving Credit	
	1960-61	1972-73	1972-73	1978-82	1982	1987
College-preparatory mathematics	46.5%	45.5%	40.2%	49.8%	195.1%	250.7%
Pre-algebra	0.0	0.4	0.2	4.3	13.2	13.5
Algebra, elementary	19.6	15.3	11.2	18.1	66.6	76.8
Algebra, intermediate	9.0	8.9	8.3	7.1	31.0	46.1
Advanced algebra / trigonometry	0.8	4.9	4.8	1.9	12.3	11.4
Geometry	13.8	11.5	11.6	11.4	45.9	56.2
Trigonometry	3.0	1.5	1.4	1.6	7.8	12.0
Advanced math ^a	0.3	2.5	2.2	4.3	16.9	26.6
Computer math	0.0	0.5	0.5	1.1	3.5	5.0
Non-college preparatory mathematics	17.4	18.5	15.0	28.2	71.0	63.3
General math	17.4	17.3	13.8	21.7	52.0	42.6
Applied math	0.0	0.9	0.9	3.7	11.0	8.9
Consumer math	0.0	0.3	0.3	2.8	7.9	11.9
Total mathematics	63.9	64.0	55.3	77.8	267.5	314.0

Sources: 1960-61 and 1972-73 are derived from Wright, *Subject Offerings*, and Osterdorf and Horn, *Offerings and Enrollments*; 1972-73 and 1978-82 are derived from West, Diodata, and Sandberg, *Trends*; 1982 and 1987 are derived from Westat, *Tabulations*, and NCES, *The 1990 High School Transcript Study Tabulations*, and represent the percentages of students in two graduating cohorts who received credit in these courses. These last two columns include private school students, since it was not possible to adjust the figures to public only at this level of detail.

^aIncludes Analysis, Functions, College Mathematics, Probability and Statistics, Calculus, and combinations of these.

TABLE 12.8 Comparisons of Changes in Natural Science Course Taking in U.S. High Schools, 1961-1987

Subject Field	% of 9-12 Enrollment		% of 9-12 Enrollment		% of Graduates Receiving Credit		
	1960-61	1972-73	1972-73	1978-82	1982	1987	1990
General science	18.9%	8.8%	5.3%	14.5%			
Biology	21.7	24.1	19.5	25.3	95.4%	113.5%	116.1%
Chemistry	9.1	7.7	8.6	7.6	35.5	49.7	54.9
Physics	4.9	3.4	2.9	1.0	16.2	21.5	23.8
Chemistry and physics, advanced		0.1	0.1	2.3			
Physical science	3.4	7.6	6.0	8.5	29.9	35.8	37.2
Earth/space science	1.0	6.6	4.5	4.9	16.2	15.9	26.0
Applied science		0.9	0.8	0.3	1.6	3.5	5.2
Other general science		6.8	3.3	0.6	30.1	23.2	18.1
Other specific science	0.8	0.3	0.2	0.4	3.0	2.1	2.1
National Science Foundation and other special programs			7.2				
Total science	59.8	66.3	58.4	65.4	227.9	265.1	283.4

Sources: Same as in table 12.7.

try, and advanced mathematics. Moreover, enrollment rates in general science courses, particularly earth/space science, seem to be on the wane.

Certainly, much of this change can be attributed to the more rigorous state-mandated graduation requirements that began in the early 1980s.⁵⁵ However, we believe that two other factors were equally, if not more important. First, reformers in the 1980s, in contrast to many of those of the Sputnik era, seem to have taken seriously the need for greater scientific literacy in the general population. Second, insofar as these reformers have also been concerned with increasing the pool of potential scientists and engineers, they have stressed the need to include women and members of minority groups in that pool. As long as these ideas hold sway, it is unlikely that the nation's high schools will be able to subvert or contain the reforms, as they have in the past, by sharply differentiating between the academic courses made available for bright, college-bound students and the so-called academic courses designed for the general track or the perceived low-ability student.

Indeed, these data seem to indicate that in the past decade a profound shift has taken place in terms of both the rhetoric of educational reform and student course-taking patterns. Where once equal educational opportunity was conceived as access to a broad range of differentiated curriculum options, an idea promoted by educators but shared by virtually all major public and private policy agencies, including the U.S. Office of Education, there is now more talk of "equalizing access to tough, academic courses" and of *all* high schools offering a rigorous "core" program of those academic courses that used to be thought of as college preparatory. If this shift in thinking takes firmer hold, reaches more deeply into the ranks of high school administrators, counselors, and teachers, and continues to influence course-taking patterns, it will constitute by far the most significant shift in educational values and behaviors since the 1930s. It will also represent the ultimate vindication of the Committee of Ten.

CONCLUSION

In 1893, the Committee of Ten asserted a vision of democratic education and of educational equality that challenged the high schools of their time—every high school student, whether bound for college or not, should follow a serious and rigorous course of study in those subjects that have proven to have lasting value in the development of our civilization. This idea did not prevail. Instead, a very different definition of democracy and a different idea of equality took hold—that a democratic education allows students to study whatever they choose and that equality consists of providing an education appropriate to each student's needs, abilities, and future destiny.

The data presented here on the long-term trends in the course-taking behaviors of American high school students illustrate the total dominance of this second set of definitions. The history of the high school has not been a long tug of war between these two conceptions, with occasional victories on either side, as many historians have suggested; instead, we see a slow but steady working out of the ideas first clearly enunciated in the *Cardinal Principles of Secondary Education*. The high school curriculum that we have, or at least had until the mid-1980s, is an amalgam of the outcomes of struggles between interest groups over control of educational policy, of the various analyses of adolescent needs that curriculum experts have produced from time to time, and of the choices and demands that students and their parents have made. It is not the consequence of a rational analysis of what knowledge will best create an enlightened citizenry educated on an equal footing.

The retreat from the ideal of the Committee of Ten has taken many forms. Most obviously, the share of course taking represented by the academic subjects drastically declined relative to the nonacademic subjects. Even within the category of academic courses, curriculum developers have given primary attention to offerings that would appeal to less able students rather than challenge the intellect. Moreover, there has been a steady trend toward courses of shorter duration and a general erosion of the notion of cumulation in learning—that the study of one subject requires prior and successful study of another. The devaluation of the coinage of academic credit is fully evident in the granting of credit for courses that were once noncredit or even extracurricular. Where the Committee of Ten recommendations sought to acknowledge the *relative* importance of subjects by varying the number of periods per week, this has proven too complicated for the modern high school, which constructs the schedule around the assumption of equal worth, equal time (five periods per week), and equal weight for all subjects.

Our analysis of the many reports on student course taking has indicated that the grip of this educational ideology may have weakened since the mid-1980s. Serious attention is being given to the old idea that all students should follow the same curriculum, whatever their career goals may be, and that to fail to require this is to deny equal educational opportunity. Supporters of this notion do not deny that there are educationally relevant differences between individuals in interests and abilities. But they argue that such differences should challenge educators to explore a host of alternative instructional methods and approaches rather than adopt the long-standing policy of split-level education. They do assert forthrightly that some subjects are inherently more important than others.⁵⁶

This seems to be the chief significance of the National Goals, particularly goals 3 and 4. Goal 3 places English, mathematics, science, history,

and geography on a level of importance somewhat higher than driver's training and personal typing, something high schools have generally failed to do. Furthermore, in the assertion that "all students [will] learn to use their minds so they may be prepared for responsible citizenship, further learning and productive employment," the operative word is *and*. Formerly, high schools represented these three aims with three different curricular tracks, the general, the academic, and the vocational, respectively, and assumed that their job was to get the right students into the right tracks. What might it mean to prepare *all* students for all three roles?

Another significance of goal 3 is its reference to students leaving "grades four, eight, and twelve having demonstrated competency." In one stroke, this goal asserts both the need to have strong vertical articulation in the curriculum between different grade levels and the need to define the grades in terms of competencies rather than merely time-in-grade.

Goal 4 may be equally revolutionary in calling for an international standard of performance. American high school educators have never doubted that our high schools are the best in the world. They are the best because they are the most democratic; i.e., they enroll a larger share of the secondary school age population than any country in the world, and they have achieved this because they have recognized that different adolescents have different curricular needs. Such thinking helped get the high schools through the 1950s without fundamental change, but it may not survive the 1980s and 1990s. We now know that several countries that have thus far rejected the concept of the differentiated high school curriculum have actually attained higher enrollment rates than ours.⁵⁷ The process of international comparison, while not likely to result in the actual attainment of goal 4, will nevertheless force us to reexamine continually some of the most cherished ideas in American educational history. One of these is surely the idea that the only way to approach universal secondary school enrollment is to make the high school curriculum less challenging and more entertaining.

Although the adoption of the National Goals and the broad support they have received are encouraging and although the data show clear signs of a significant reversal of the long trend, there are reasons to fear that the change might not be as profound and long-lasting as we would hope. First, the long declines in achievement scores recorded by the National Assessment of Educational Progress, the SAT, and the ACT have shown little reversal, despite the apparent increase in the taking of precollege math and science courses by high school students. Second, as in the 1950s, students may be taking unchallenging courses with academic titles, possibly explaining the continuously low test scores. Increases in state-mandated graduation requirements, in themselves, do not guarantee that students will be seriously engaged or that required subjects will be well taught.

Third, and most important, the most widely publicized and discussed educational reform initiatives of this decade—school choice, school-based management, politically controlled local school councils, the creation of schools committed to religious and racial fundamentalism—threaten to weaken the revolutionary potential of the National Goals. All of these assert the primacy of the particular over the universal. All argue for greater rather than less diversity in school offerings. If left unchecked by external constraints on curriculum building, they all have the potential to exacerbate the curriculum fragmentation that has characterized the very essence of the modern American high school.

The most powerful external constraint we can conceive would be the adoption of either a national curriculum or a clear set of national performance standards and assessment. Such a constraint would bring an important change to testing, since students would be tested on what they had been taught, thus making education more accountable. It would make it more difficult for educators to subvert reforms, as they have in the past, by demanding clear performance standards instead of merely requiring a particular set of courses. It would set a framework within which local experimentation in such areas as governance or teaching methods could proceed without endangering important national priorities. Finally, it might end the mockery that American high schools have made of the concept of equal educational opportunity.

NOTES

1. Bernard Weinraub, "Bush and Governors Set Goals" *New York Times*, 29 September 1989, A10.

2. U.S. Department of Education, *America 2000: An Education Strategy* (Washington, D.C.: USDE, 1991), 3.

3. We focus on developments on the high school level for several reasons. First, there is widespread agreement that secondary education is the most troubled part of the American educational enterprise. Second, almost all of the major curriculum reform movements in the last half century have sought to transform secondary rather than elementary education. Third, for almost seventy years a variety of federal agencies have been collecting data on course taking by high school students. These data, though seldom utilized for this purpose, permit in-depth analyses of curricular changes over precisely the periods during which the high school has been most under fire.

4. Arthur Powell, Eleanor Farrar, and David K. Cohen, *The Shopping Mall High School: Winners and Losers in the Educational Marketplace* (Boston: Houghton Mifflin, 1985), 241–42. For excerpts from these reports, see David B. Tyack, *Turning Points in American Educational History* (Waltham, Mass.: Blaisdell Publishing Co., 1967), 380–86, 396–400.

5. John Latimer, *What's Happened to Our High Schools?* (Washington, D.C.: Public Affairs Press, 1958), 117.

6. Robert L. Church and Michael W. Sedlak, *Education in the United States* (New York: Free Press, 1976), 288–314; Edward A. Krug, *The Shaping of the American High School, 1880–1920* (Madison: University of Wisconsin Press, 1964), 378–406; Diane Ravitch, *The Troubled Crusade: American Education, 1945–1980* (New York: Basic Books, 1983), 47–51.

7. Edward A. Krug, *The Shaping of the American High School, 1920–1941* (Madison: University of Wisconsin Press, 1972), 68–146; David B. Tyack, *The One Best System* (Cambridge: Harvard University Press, 1974).

8. Ravitch, *The Troubled Crusade*, 52–64.

9. Robert Hampel, *The Last Little Citadel: American High Schools since 1940* (Boston: Houghton Mifflin, 1986), 35–42; Ravitch, *The Troubled Crusade*, 64–69; Steven E. Tozer, Paul C. Violas, and Guy Senese, *School and Society: Educational Practice as Social Experience* (New York: McGraw-Hill, 1992), 196–97.

10. The Prosser resolution is quoted in Ravitch, *The Troubled Crusade*, 64–65. See also Lawrence Cremin, *The Transformation of the School* (New York: Alfred A. Knopf, 1961), 332–38.

11. Church and Sedlak, *Education in the United States*, 404.

12. Smith is quoted in Cremin, *Transformation of the School*, 340. Arthur Bestor, *Educational Wastelands: The Retreat from Learning in Our Public Schools* (Urbana: University of Illinois Press, [1953] 1985), 10.

13. Church and Sedlak, *Education in the United States*, 404–7; Ravitch, *The Troubled Crusade*, 69–80; Joel Spring, *The Sorting Machine: National Educational Policy since 1945* (New York: David McKay, 1976), 15–37.

14. Ravitch, *The Troubled Crusade*, 229; Spring, *The Sorting Machine*, 96–127; James B. Conant, *The American High School Today* (New York: McGraw-Hill, 1959); Tozer, Violas, and Senese, *School and Society*, 199–203; Church and Sedlak, *Education in the United States*, 407–17.

15. Ravitch, *The Troubled Crusade*, 235.

16. A. S. Neill, *Summerhill: A Radical Approach to Child Rearing* (New York: Harcourt, Brace & Co., 1960); Ravitch, *The Troubled Crusade*, 235–45.

17. Charles Silberman, *Crisis in the Classroom: The Remaking of American Education* (New York: Random House, 1970); Ravitch, *The Troubled Crusade*, 245–55; Powell, Farrar, and Cohen, *Shopping Mall High School*, 296–99.

18. Ravitch, *The Troubled Crusade*, 255–56, 263–66; Tozer, Violas, and Senese, *School and Society*, 371–72.

19. Marland is quoted in Spring, *The Sorting Machine*, 234. See also 233–36.

20. National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform* (Washington, D.C.: Government Printing Office, 1983), 5.

21. Quoted in Staff of the National Commission on Excellence in Education, *Meeting the Challenge: Recent Efforts to Improve Education across the Nation* (Washington, D.C.: U.S. Department of Education, 15 November 1983), 1.

22. Tozer, Violas, and Senese, *School and Society*, 368–83. Studies that made recommendations for improving American education include Ernest L. Boyer, *High School: A Report on Secondary Education in America* (New York: Harper & Row, 1983);

John I. Goodlad, *A Place Called School* (New York: McGraw-Hill, 1984); Powell, Farrar, and Cohen, *Shopping Mall High School*; Theodore R.Sizer, *Horace's Compromise* (Boston: Houghton Mifflin, 1984); Twentieth Century Fund, *Making the Grade* (New York: TCF, 1983); Education Commission of the States, *Action for Excellence* (Denver: ECS, 1983); National Science Board Commission on Precollege Education in Mathematics, Science, and Technology, *Educating Americans for the 21st Century* (Washington, D.C.: National Science Foundation, 1983).

23. Tozer, Violas, and Senese, *School and Society*, 378; James B. Stedman and K. Forbis Jordan, *Education Reform Reports: Content and Impact*, report 86-56 EPW (Washington, D.C.: Congressional Research Service, 1986), 12-41.

24. Hampel, *The Last Little Citadel*, 177, but see also Latimer, *What's Happened?* and Powell, Farrar, and Cohen, *Shopping Mall High School*, chap. 5.

25. For example, no enrollments were listed for such subjects as physical education and typewriting and, when these subjects first appeared in the reports in 1922, their enrollments were already greater than for many of the subjects on the earlier lists. For evidence that the subjects were being taught before they were included in national surveys, see R. B. Stout, *The Development of High-School Curriculum in the North Central States from 1860 to 1918* (Chicago: Department of Education, University of Chicago, 1921).

26. U.S. Office of Education (hereafter USOE), *Biennial Survey of Education, 1926-1928*, bulletin 1930, no. 16 (Washington, D.C.: Government Printing Office, 1930); USOE, *Offerings and Registrations in High School Subjects, 1933-34*, bulletin 1938, no. 6 (Washington, D.C.: Government Printing Office, 1938); USOE, "Offerings and Enrollments in High-School Subjects," in *Biennial Survey of Education in the United States, 1948-50* (Washington, D.C.: Government Printing Office, 1951), chap. 5; Grace S. Wright, *Subject Offerings and Enrollments in Public Secondary Schools* (Washington, D.C.: Government Printing Office, 1965); Logan C. Osterndorf and Paul J. Horn, *Course Offerings, Enrollments, and Curriculum Practices in Public Secondary Schools, 1972-73* (Washington, D.C.: Government Printing Office, 1976). To extend this series beyond 1973, the National Center for Education Statistics contracted with Evaluation Technologies, Inc. (ETI) to develop a way to transform student transcript data from the *High School and Beyond* study of the cohort of 1982 graduates into estimates of course enrollment data compatible with the 1973 data collection. See Jerry West, Louis Diodato, and Nancy Sandberg, *A Trend Study of High School Offerings and Enrollments: 1972-73 and 1981-82*, NCES 84-224 (Washington, D.C.: Government Printing Office, 1984). In our tables 12.1 through 12.3, the 1982 column is adapted from this study, although the 1973 column is adapted from the original data collection, Osterndorf and Horn, *Course Offerings, 1972-73*.

27. In the latest study available, the transcript study of the cohort of 1987 graduates by Westat, Inc., over 3,000 course titles were reported in a national sample of 22,700 student transcripts. The curriculum expansion continues apace. Westat, Inc., *High School Transcript Analysis: The 1987 Graduates*, Vol. 1, *Tabulations: 1987 High School Transcript Study, with Comparisons to the Class of 1982* (Unpublished research report submitted to NCES, November 1988).

28. To encourage greater consistency among researchers in the coding of courses, NCES contracted with ETI to develop a classification system. Clifford

Adelman did not "find the scheme to be compelling." "Devaluation, Diffusion and the College Connection: A Study of High School Transcripts, 1964–1981," Unpublished paper prepared for the National Commission on Excellence in Education, ERIC ED #228–244, March 1983. For our purposes, we did not feel that the effort of the USOE to maintain and extend a "historical table" was particularly successful, since the approach used was to try to code each new set of course enrollments into the course categories of the previous data collections. Since we were interested in changes in the relative share of enrollments in a comprehensive set of subject field categories, we recoded all of the data from the most detailed tables in these survey reports into fourteen subject fields, with as much consistency across time as possible. Any such coding is liable to a certain amount of error, and the appearance of change over time may, in small part, be the result of coding courses in one subject category rather than another.

29. There are two notable exceptions, however. First is John F. Latimer's compelling but seldom-cited book, *What's Happened to Our High Schools?* The other is David K. Cohen's outstanding essay, "Origins" in Powell, Farrar, and Cohen, *Shopping Mall High School*. Both have influenced our interpretation of high school curriculum reform.

30. Latimer, *What's Happened?* 118.

31. Even the famous Prosser resolution was presaged by his 1939 Inglis lecture at Harvard University. Charles Prosser, *Secondary Education and Life* (Cambridge: Harvard University Press, 1939). See also Jeffrey E. Mirel and David L. Angus, "The Rising Tide of Custodialism: Enrollment Increases and Curriculum Reform in Detroit, 1928–1940," *Issues in Education* 4 (Fall 1986): 101–20.

32. Recent sources have used the category "personal development courses" to group such offerings as typing, physical education, driver's education, child care, and even band. Although such categorization seems to us both logical and useful, courses that hold their place in the curriculum as a result of mandates from state governments, as is the case with physical education and driver's education, might also need to be understood as courses "in the public interest." See Adelman, "Devaluation"; Westat, *Tabulations*.

33. Douglas is quoted in Ravitch, *The Troubled Crusade*, 60.

34. Neither secondary teachers nor such national organizations representing subject matter interests as the Music Educators National Conference and the National Science Teachers Association played a very prominent role in the post-World War II curriculum debates. The reason probably lies in the enormous enrollment increases that characterized the period of 1945 to 1976. There was always a demand for more and more teachers of every subject, and classes were always adequately enrolled, if not overenrolled. From the teachers' perspective, it surely mattered very little if national enrollments in music were growing faster than those in art or if physical education enrollments were growing faster than those in mathematics. This condition has changed, however. In the fall of 1968, the national enrollment in grades 9 through 12 reached 93 percent of the 14- to 17-year-old population, and it has remained at or slightly below that figure since. In 1975, the 14- to 17-year-old population topped out at about 17,125,000, and it has been declining since. [See U.S. NCES, *Digest of Education Statistics, 1990* (Washington, D.C.: Government Printing