

MEMORANDUM

To: Preparation Work Group Members
From: Jeff Williams
Date: October 1, 2004
Subject: Materials for Monday's meeting

Several documents follow this memorandum in three Acrobat files.

1. Agenda for Monday's meeting
2. A research brief outlining
 - a. standards/required curriculum and states pursuing the "opt-out" strategy,
 - b. state leadership examples in promoting the refashioning/restructuring of high schools, and
 - c. teacher preparation/certification issues related to implementing a more rigorous high school regime.
3. Two presentations **for your background information**. These will be outlined quickly by the research team at Monday's meeting.
 - a. A presentation providing information about the performance of Michigan 2004 graduating seniors who took the ACT Assessment® as sophomores, juniors, or seniors
 - b. A presentation about defining challenging standards from Dr. William H. Schmidt, Michigan State University

Both presentations have very detailed slides, which may print too small when you print out this memo. If you want the full-page version of the slides, go to the work group website (<http://www.cherrycommission.org/private/preparation/>) and you can download the larger version.

4. Work group members Bryan Taylor and Andy Mazzara have offered some ideas for recommendations. Their ideas are attached to this memo and can further inform our discussion Monday. Since several of the recommendations also deal with dual enrollment, their comments are being shared with the Participation Work Group that is drafting recommendations in that arena.

Additional material will be distributed on Monday at both sites. If you have questions, please let me know.

Agenda and Research Brief

PREPARATION WORK GROUP AGENDA

Monday, October 4, 2004

1:00–4:00 PM

VIDEOCONFERENCE SITE #1:

*Room T221, University Technology and Learning Center
Lawrence Technological University
21000 West Ten Mile Road
Southfield, MI*

VIDEOCONFERENCE SITE #2:

*Room 606, Capital Area Career Center
Ingham Intermediate School District
2630 West Howell Road
Mason, MI*

1. Introductions—Review of Agenda and Desired Outcomes from the Discussion
Debbie Dingell, Chair
2. Presentations
 - a. ACT Results for Michigan
Research Team
 - b. “Challenging Standards”
Research Team
3. Items for Discussion
 - a. Draft preamble
 - b. Defining terms—Core frameworks/core curriculum; high standards
 - c. Curriculum models—How are the “opt out” curriculum states set up?
 - d. Incentivizing reshaped high school programs
4. Review draft recommendations
5. Next steps

Preparation Work Group

Research Brief

October 4, 2004

by
Nathan Daun-Barnett
University of Michigan, Ann Arbor

INTRODUCTION

This background paper deals with three issues work group members wanted more on coming out of the last meeting

1. Standards/required curriculum and states pursuing the “opt-out” strategy
2. State leadership examples in promoting the refashioning/restructuring of high schools
3. Teacher preparation/certification issues related to implementing a more rigorous high school regime

1. STANDARDS/REQUIRED CURRICULUM AND STATES PURSUING THE “OPT-OUT” STRATEGY

In previous briefs, there was a thorough discussion of the dimensions of state high school standards with a comparison of course expectations by type of institution. The purpose was twofold: (1) to demonstrate the lack of alignment among the several stakeholders in education including high schools, colleges and states, and (2) illustrate what standards might look like from differing perspectives if the group were to make some form of recommendation in this area.

There are two pieces related to standards that require additional elaboration and serve as the subject for this addendum. The first has been coined the “opt out” alternative in state standards. Both Texas and Arkansas have nascent policies that articulate a minimum track that students can choose, and those policies will be discussed with their promises and possible consequences. Second, we revisit two states that have wrestled with the issue of developing state standards and how those were initiated and implemented through the policy development process. Both Massachusetts and Nebraska will be considered because they share the common feature of being distinctly decentralized in favor of local control but have found ways to leverage state control on a local control system.

The Opt-Out Provision for Standards Reform

There has been a great deal of attention paid to the evolution of the high school curriculum since 1980. Prior to the issuance of *A Nation At Risk* (National Commission on Excellence in Education, 1983), 13 states had no formal high school curriculum graduation requirement (National Center for Education Statistics, 1995). Ten years later, more than half of those states had adopted a set of requirements, and since that time, nearly every state with course requirements has increased the total number of credits and the level of courses to be completed. Today, *only six states remain that have not implemented a set of course requirements as a condition for graduation from high school*. Michigan is on that list. The complete list of states and their respective course requirements are included in the resources section for the preparation work group.

Tremendous variation exists in the number of credits required and the courses within which those credits can be earned (by academic subject area). For example, California, Wisconsin, and Wyoming all require 13 credits whereas Alabama, Florida, and Minnesota all require 24 credits (where credits are approximated by Carnegie units). At

the same time, Maine and Illinois have among the lowest requirements in the core subject areas—English, math, science, and social studies—with 8–10 required units whereas Alabama tops the charts with 16 required units in the same core subject areas (National Center for Education Statistics, 2002).

Some of the variability can be understood in terms of the influence exerted at the state level. Florida and Texas are two of the most highly coordinated systems of education at the state level, and their requirements are among the highest. Florida was a bit of an anomaly because it was one of the 13 states with no requirements in 1980, and it is among the leaders in terms of the number and rigor of courses required today. Texas has developed a bit of notoriety because it served as the model for the current iteration of standards reform at the federal level. On the opposite end in graduation requirements are California, Maine, and Wisconsin—three of the states with no course requirements in 1980 and with among the lowest number of requirements today, ranging from 13–16 credits. California is an interesting case because it has a strong reputation in higher education as one of the most centrally coordinated systems in the country and yet it has the fewest required credits in high school—owing largely to the fact that it requires no elective courses at all.

In some ways the states are also very similar. All but six states that have course requirements expect students to take at least four years of English and the majority require either two or three units in each of the remaining core subjects. And where they differ in the number of electives required can frequently be explained by the specificity of those electives. For example, Alaska requires nine elective courses (out of 21 total units) and specifies only one unit of physical education beyond the core subjects, whereas Georgia only requires four electives (out of 22 total units) but specifies that one unit be taken in physical education, two in foreign language, and one from language, technology, or fine arts.

The simple point to be made here is that with some exceptions, the greater the emphasis on local control in the state, the fewer number of course requirements, with Michigan among the six states that have few to no course requirements. There are a number of dimensions along which to judge whether a state is primarily local versus state control including but not limited to sources of funding, control over content standards, the development and implementation of state testing (more relevant prior to NCLB), the nature and frequency of those tests (including high stakes exit exams), the certification of teachers and principals, the size and scope of the state department of education, control over textbook and educational materials, and in some cases the history of success or failure of local control—several southern states now among the most heavily coordinated at the state level had previously provided some of the poorest quality education under local control formats. While this is not intended to be a complete survey of the state governance structures for K–12 education, it is commonly acknowledged that Michigan is a “local control” state whereas New York and Texas are among the archetypes of the state-controlled systems.

Increasing Requirements

While there are still considerable differences in the number of courses states require high school graduates to complete, one thing remains consistent: *the requirements have increased across all states that have course requirements*. New York State required 16 credits only 25 years ago, 8–10 in the core subjects; today they require 22 credits and 12–14 core courses. Florida moved from having no requirements in 1980 to having the highest number of requirements at 24. And Illinois, which required only 10.5 units prior to 1996, today requires 19 units for graduation. Courses are the building blocks for high school education, and this is one of the ways higher standards manifest themselves.

Higher standards produce higher stakes and greater pressure to succeed. Course requirements are one way the stakes increase, but it is not even the most important. Testing is at the heart of higher standards, and they should be designed to assess what students are expected to learn through the curriculum. It should be noted, however, that those with the highest level of statewide requirements are also more likely to have high stakes graduation tests: The New York Regents, the Texas Assessment of Knowledge and Skills (TAKS), and the Florida Comprehensive Assessment Test (FCAT) are all tests that have implications for graduates (Education Commission of the States, 2000). According to the Education Commission of the States (ECS), 27 states have high stakes exit exams for high school completion or are planning to phase them in.

The Opt-Out Policy Option

Texas and Arkansas are two states that have among the highest standards in terms of course requirements. The two states require 24 and 22 credits for graduation, respectively, with 12–13 of those units in the core subjects. They also maintain high stakes or exit level exams. Texas requires students to pass the Texas Assessment of Knowledge and Skills (TEKS) in order to graduate; Arkansas maintains a slightly less “high stakes” set of tests in basic literacy, algebra, and geometry, but a passing score is not established as a condition for graduation. In both cases, the stakes are high for high school graduation and both states have had to respond. Both states are now implementing, effective 2004–2005, policy where students or parents of students may elect to scale back from the recommended curriculum in favor of a minimum alternative. This is the opt-out policy.

Texas

Under Chapter 74 of the Texas Administrative Code (TAC), the graduation requirements for high school students are clearly articulated. A small provision of the chapter stipulates that:

A student entering ninth grade in the 2004–2005 school year and thereafter shall enroll in the courses necessary to complete the curriculum requirements for the recommended high school program specified in §74.53 of this title...unless the student, the student's parent or other persons standing in parental relation to the student, and a school counselor of school administrator agree that the student

should be permitted to take courses under the minimum high school program specified in §74.52 of this title.¹

The Texas minimum graduation plan requires that students complete 22 as opposed to 24 credits, and the only differences in the number of courses by subject include one less science course and one less social studies course. In addition, the plan requires only algebra I and geometry, whereas the recommended course list includes algebra II. Perhaps the greatest difference is seen in the shift from foreign language to elective credit. The recommended curriculum requires two courses in the same foreign language, whereas the minimum path eliminates language in favor of additional elective credit.

Arkansas

Arkansas has a slightly less “high stakes” environment than Texas but this year two changes of particular note were implemented. First, the state increased the number of course requirements from 21 to 22 by adding a fourth year of math and now refers to the high school curriculum as the Smart Core. At the same time, they have created a policy similar to that of the Texas Opt-Out that is encapsulated in the Smart Core Informed Consent Form. The Arkansas Guidelines read: “All students will participate in the Smart Core curriculum unless the parent or guardian waives a student’s right to participate. In the case of the waiver, the student will be required to complete the Common Core.”

The following is a description of the Arkansas plan from Governor Mike Huckabee:

Though the debate over education reform has dominated the news in our state for months, one aspect of the education reform effort hasn't received the attention it deserves. I'm talking about the adoption by the state Board of Education of the Smart Core curriculum. Smart Core requires that every high school in Arkansas offer the existing core curriculum of 38 units every year instead of every other year. It increases graduation requirements from 21 units to 22. This includes four units of English, four units of math, three units of science with lab experience and three units of social studies. At least one math course must be taken in the 11th grade or the 12th grade.

With a highly competitive world economy, it's imperative we increase the rigor of the curriculum at the high school level. Numerous studies have shown that high school preparation is the most significant factor in determining whether a student will earn a college degree. By not preparing students better at the high school level, we're dooming many of them to failure when they advance to college. Under the plan adopted by the Board of Education, Smart Core will be the standard course of study for all high school students, whether they plan to attend college or not. Parents will have to sign a waiver for their children to transfer to a less rigorous class schedule. Even under the less rigorous common core, the state will require more math courses.²

¹ For the Texas Administrative Code, visit <http://www.tea.state.tx.us/rules/tac/chapter074/ch074e.html>. Table also provided in the resource section for the Preparation Work Group.

² This quoted section is from a radio address of Governor Huckabee on January 31, 2004, and can be found at <http://www.arkansas.gov/governor/media/radio/text/r01312004.html>.

The Common Core under the Arkansas plan does require the same number of courses, but the differences are largely found in the rigor of the courses required. Like Texas, the minimum requirement does not include algebra II, and in Arkansas, none of the three science courses require a lab component. The Arkansas tests only cover literacy, algebra I, and geometry, so students will take all of the coursework they should require for test completion.

The Tradeoffs of Opt-Out Policies

In many ways, the opt-out alternative is remarkably similar to the conventional tracking system that was a common feature of the high school curriculum. Texas articulates three tracks including the Distinguished Achievement Program and Arkansas delineates two with the Smart and Common Cores, but it is likely that an advanced curriculum is offered, at least in some areas. The conventional tracks previously may have been titled vocational/career and college preparatory but the current tracks may lead to the same end result.

There is a critical difference, however, that may make these new policies significant. In the past, the default curriculum was more likely to be at the basic level, and professionals recommended higher levels when it appeared a student was capable. Both Texas and Arkansas begin with the assumption of the recommended and rigorous curriculum and place the power of choice in the hands of students and parents. This is a potentially powerful and empowering shift in the locus of control from the school to the students and parents. There are some who will maintain that the high school diploma is adequate preparation for them to enter the workforce and be productive, and these options keep the bar high in terms of the number of courses and also maintain the same testing requirements. In short, it gives some students the option of following a path of less resistance. Both policies begin with the ninth grade cohort of 2004–2005, so it will be a few years before the full scope of the policy is understood, but it appears to provide a promising release in a high pressure, high stakes system.

Two cautionary pieces should be considered, however—not in the determination of whether to adopt the policy but rather how to operationalize it. First, consider when the assessments are taken and what level of course material students are expected to complete. If the state is truly concerned with what is learned through the 12th grade, will students be tested on 12th grade material according to both curricula? There is a possibility that a tradeoff will occur that results in testing at a slightly lower level. Second, it is important to consider how students are expected to initiate the option and how much influence the professional staff maintains in the decision. The Texas plan requires the student to initiate the process of requesting a minimum standard. Arkansas is similar but greater emphasis is placed upon the mutual involvement of parents and counselors in the decision. A professional voice is important, but it can also lead to an exercise of exceptional influence by virtue of position and expertise. In the worst of this case, the Common Core could revert to a tracking policy if counselors and teachers are not specifically designated and encouraged to defend keeping students in the recommended curriculum.

Finally, to achieve increased curricular standards requires a shift in school resources, particularly regarding the teaching staff. If you require all students to take four math courses in a district which previously required three, you will need more math teachers and, in all likelihood, fewer teachers in elective areas. To require this high standard for all and to genuinely assume all will complete the rigorous curriculum, these structural changes need to be made.

Two Approaches from Decentralized States

Massachusetts

Much of this section was included in the second Preparation Work Group brief but it is worth repeating in the current context. Massachusetts faced similar circumstances regarding the nature of educational control and instead of choosing a rigorous curriculum for the state, it issued a study of the districts, identified the similarities and differences in the curricular requirements, and opted to create a criterion-referenced testing mechanism in the Massachusetts Comprehensive Assessment System (MCAS).

The state of Massachusetts is home of more than 6 million people—roughly 60 percent of the Michigan population. The states share a similar racial and ethnic profile, and each has a large urban center that has been the subject of frequent reform efforts. Massachusetts is home to some of the most prestigious institutions in the nation, and in the 2000 Census (U.S. Census Bureau, 2000), more than 33 percent of its citizens over age 25 had earned at least a bachelor's degree (compared to 24.4 percent nationally and nearly 22 percent in Michigan). When Michigan considers what states may serve as role models, Massachusetts would certainly be on the list.

Similar to Michigan, Massachusetts has only two state-mandated graduation requirements—history and physical education—and allows the LEA to set diploma requirements. The cornerstone of their reform, while acknowledging the need for systemic change, was the creation and implementation of the Massachusetts Comprehensive Assessment System (MCAS), a 10th grade examination keyed to the state curricular standards (Massachusetts Department of Education, 2004). Like Michigan, Massachusetts has an established curricular framework, and the MCAS is designed to assess whether students have successfully mastered the content of the core subject areas. The MCAS is a criterion-referenced testing system keyed to four content areas: English language, mathematics, science and technology, and history and social science.

MCAS is a high stakes test in that students are required to pass the exam as a condition for earning a diploma (Massachusetts Department of Education, 2004). The MCAS evolved from a reform effort in the early 1990s that included a reallocation of state support to less advantaged communities, the development of state curricular frameworks to edify the high school diploma, and the implementation of the MCAS as an accountability standard.

State Representative George Field, supporter of the legislation, summarizes the progress Massachusetts has seen as a result: The English pass rate in Cambridge rose from 33 percent to 70 percent and poorer districts on average improved their pass rates by 14–20

percent since the legislation was enacted. Representative Field also warns, however, that those less likely to pass are those in impoverished communities and are most often underrepresented minorities (Field, 2002). He recommends that more should be done with remediation and tutoring efforts to bring students up to the standard.

Massachusetts, like Michigan, is one of three states that do not establish a minimum number of courses and that leave the definition of high school completion to the LEA. They are able to use the MCAS as a way to establish a statewide set of expectations while allowing local control over how to prepare students to demonstrate success, but this is successful only because the test is required of all students. This does not address the question of whether to use MEAP or ACT, or a “hybrid,” but it does illustrate an important context to consider when making recommendations on this issue. The Massachusetts approach is reminiscent of John Porter’s claim that the tests can be leveraged to drive the curriculum. The LEA maintains local control over setting the curriculum, but its students are required to pass tests the state creates in order to earn a diploma. If the tests assess skills learned in algebra II, those districts will find a way to make sure students are equipped with the right courses.

Pennsylvania

Pennsylvania is another of the six states that set no statewide course requirements for high school completion. Instead, all curricular decisions remain at the local level. The following is taken from the Pennsylvania Code regarding high school graduation requirements:

§ 4.24. High school graduation requirements.

(a) Each school district, including charter schools, shall specify requirements for graduation in the strategic plan under § 4.13 (relating to strategic plans). Requirements shall include course completion and grades, completion of a culminating project and results of local assessments aligned with the academic standards. Beginning in the 2002–2003 school year, students shall demonstrate proficiency in reading, writing and mathematics on either the State assessments administered in grade 11 or 12 or local assessment aligned with academic standards and State assessments under § 4.52 (relating to local assessment system) at the proficient level or better to graduate. The purpose of the culminating project is to assure that students are able to apply, analyze, synthesize, and evaluate information and communicate significant knowledge and understanding.

Pennsylvania is a high stakes environment because it requires the successful passing of proficiency tests, but it maintains its local control in unique ways and exerts state level control subtly. As mentioned above, Pennsylvania has established the PSSA as its assessment instrument compliant with NCLB, but it also gives districts the option of creating their own tests so long as they are aligned with the standards set forth in the PSSA. More interesting and unique in the Pennsylvania approach is the call for a culminating project that must be completed for graduation. Effectively, the state has required that LEAs adopt some form of culminating project assessment, which is similar to a portfolio, among the more progressive alternatives to student assessment. The state has not exerted unusual direct influence on the LEA, but it has established what should

matter, both in testing and alternative assessments, for students to graduate from high school.

2. STATE LEADERSHIP EXAMPLES IN PROMOTING THE REFASHIONING/RESTRUCTURING OF HIGH SCHOOLS

There is a lot of activity around the country to refashion high schools. Work group member Mike Schmidt of Ford Motor (active in this movement); Achieve, Inc. (Mike Cohen—is an architect of this movement); and Jobs for the Future (which is managing much of the high school reshaping efforts for the Gates Foundation nationally) identify the following as states in the lead:

- Ohio
- Maine
- Texas
- North Carolina
- Washington
- Utah
- Virginia

There are also a number of big cities leading high school reshaping efforts. They include:

- Los Angeles
- New York
- Chicago
- Baltimore
- Camden
- Denver

On September 9 the National Governors Association announced a major new initiative on redesigning the high school experience. The NGA website has a bunch of information on this initiative, as well as background papers and information, at www.nga.org.

The following are four brief descriptions of how these states are approaching this task.

Ohio

A commission appointed by the Ohio State Board of Education is releasing a set of recommendations in the next week or so that calls for a comprehensive set of state actions to promote serious reform. It ties in well with a set of recommendations made by the recent Governor's Commission on Higher Education and the Economy last spring, so there is the beginning of serious state leadership. Ohio has partnered with the Knowledgeworks Foundation, which is managing Gates Foundation money to support high school remaking. The following is a description of the high school project in Ohio.

The Ohio High School Transformation Initiative (OHSTI) is grounded in the belief that learning is essentially all about relationships—about making connections among people, places, resources, and ideas. OHSTI seeks to improve student achievement by establishing the conditions that allow real learning connections to emerge and grow within the state's most challenged urban high schools. Students in Ohio's urban high schools demonstrate serious shortcomings in their academic performance. While 80.4 percent of Ohio's students graduate from high school, the number is much lower for urban districts, at only 59.6 percent.

The processes of teaching and learning in America's high schools have remained relatively unchanged since the early 1900s. Today's high schools, like their predecessors, are based on a factory model with few connections to the surrounding people or communities. In addition, current research demonstrates that urban high schools that are large in size (at or above 800 students) foster an impersonal environment that contributes to other negatives in public schools. Poor academic achievement, violence, apathy, anonymity, underachievement, and increased dropout rates are exaggerated among students of large urban schools. The large urban school also takes a toll on teachers and principals as they struggle to deal with students who are often nameless figures. It follows that when students and staff are at risk, so are their surrounding communities.

Maine

The state of Maine is one of the few states that developed high school graduation requirements subsequent to *A Nation At Risk*. They have a history of local control but have established a minimum set of requirements of 16 units and among the most lenient in terms of the core subject areas. Maine has long been the leader in high school reform at the state level, and beginning in 1999 the state superintendent led a push for higher standards, more personalized schools, and richer assessments. Recently, the governor of Maine initiated the Task Force to Create Seamless Pre-Kindergarten Through Grade Sixteen Educational Systems. It is similar to the work of the commission here in Michigan but with a particular emphasis on the alignment of curriculum that takes students beyond high school seamlessly into college. This group is expected to issue a report in January 2005.

Rhode Island

The Rhode Island Board of Regents and state education chief Peter McWalters have been working for a while now to address the challenges at the high school level. It started by announcing a set of principles regarding what constitutes a good high school that districts are encouraged to adopt. Rhode Island also has a requirement that districts develop a set of performance assessments tied to state standards, intended to promote more applied and engaging instructional strategies. More recently the state board of education and the state board of higher education launched a task force to define standards for being "college ready" (remediation free), which is supposed to then be reflected in high school standards and assessments to be developed.

Texas

Michael Cohen of Achieve, Inc., reports that Texas is now going beyond the standards and assessment issues to a broader high school reform agenda. Sometime in the past six months Bill Gates gave Texas a large donation, and the Dell Foundation added additional funds, to undertake a high school reform initiative. This will be much along the lines of what Knowledgeworks is doing in Ohio but with much more state and gubernatorial involvement up front and the help of the Texas Community Foundation. More details will follow.

North Carolina

North Carolina is beginning a similar effort with Gates's support.

3. TEACHER PREPARATION/CERTIFICATION ISSUES RELATED TO IMPLEMENTING A MORE RIGOROUS HIGH SCHOOL REGIME

This section revisits a portion of the first Preparation Work Group research brief. It is included here in reference to the discussion initiated regarding teacher training and qualifications. It addresses the issue of teacher training and professional development but does not attempt to address the issue of teacher certification, which is a unique area of the Michigan system. The issue of certification may be addressed in future briefs, subject to the request of the commissioners.

No serious effort to improve the academic achievement of students in high school will succeed without a concerted effort to improve and update the capacity of our teaching corps. It has long been acknowledged that the quality of teaching is an important factor in a student's ability to learn. In a review of 65 studies of teacher quality, Darling-Hammond (2000) found six teacher characteristics commonly used as proxies for teacher quality: general academic ability and verbal ability, subject matter knowledge, knowledge of teaching and learning, teaching experience, certification status, and teacher behaviors and practices. The impact of these characteristics varied. One recent study of teacher certification effects on student achievement found that 12th graders whose teachers have standard certification scored significantly higher on the mathematics portion of the NAEP than children whose teachers were uncertified (Goldhaber & Brewer, 2000).

The emerging consensus is that investment in teacher quality yields higher returns in the form of achievement gains than any other education investment/reform, particularly among poor and minority populations. Sanders and Horn (1998) found that the two most important determinants of a child's academic achievement in a given year are the child's prior achievement level and the effectiveness of his or her classroom teacher. The impact of teacher quality was far greater than the impact of other factors, including oft-mentioned class size: Investment in teacher education, retention of experienced teachers, and higher teacher salaries have each been shown to produce larger gains than the same investment devoted to reducing class size (Darling-Hammond, 2000). This holds true in district level (Haycock, 1998) as well as in national studies (Darling-Hammond, 2000; Wenglinsky, 2000).

Professional development for teachers may be seen in stages from the point of entering a teacher preparation program, to accepting their first teaching position, to their mentoring of young teachers entering the profession. At every stage, development must occur and it must be both substantial and relevant. Teachers, like students, must be provided development that meets their needs at all stages of their career. Too often, professional development is required of teachers with little consideration of how those efforts are relevant to the classroom and how the cumulative body of professional development opportunities interrelates to create a cohesive learning experience. Professional development should be considered for each of the following stages.

Teacher Preparation Programs

This is the point of entry to the profession, and it is where the greatest amount of training occurs. A well-constructed teacher preparation program requires a demanding curriculum that addresses both the content of what will be taught and the pedagogy that informs how teaching and learning is facilitated in the classroom. In Michigan, we have several of the most highly regarded teacher preparation programs in the country, particularly regarding the most cutting-edge research on classroom teaching. The issues to consider here are these: (1) Given that students attend school fairly close to home and often wish to return to their communities to work, are teacher preparation programs spread throughout the state and, in particular, in the areas with high demand? (2) Can independent colleges offer teacher preparation and maintain their commitment to graduating students in four years? and (3) Is the research generated in these programs finding its way into the hands of veteran teachers? In times when teachers are scarce, it is also worth considering how teachers are recruited to the profession. For example, there is a move toward providing preparation for college-educated professionals who return later to become teachers.

Consider the example of **New York City**. Faced with a serious teacher shortage, New York began to recruit and train lawyers, engineers, computer professionals, and a host of other professionals to become teachers in the school system. Each teacher-in-training entered an accelerated program of education courses and was ready to face a class within as few as several months. In most cases, these individuals were looking for career changes and had extensive knowledge in their intended teaching areas. The University of Michigan offers a similar program in the Master of Arts with Certification (MAC). This is a one-year intensive preparation designed to train those who have already earned a bachelor's degree and wish to teach.

Educators continue to recognize that effective teacher preparation must account for the local context within which teaching and learning occur. Michigan residents recognize that while students may be equally underprepared to succeed in college or the workforce without adequate teacher preparation, what works in Flint may be considerably different than an effective approach in Oscoda. Currently, there is a great deal of attention paid to the urban context. For example, Centers for Urban Education that now exist in San Francisco,³ Los Angeles,⁴ Boston,⁵ and Chicago⁶ consider how teachers and educators

³ The program is offered out of UC Berkeley and can be found at http://www-gse.berkeley.edu/research/urbaned/Center_urban_ed.html.

must be prepared to best serve students from urban settings that often are heavily minority, have fewer economic resources, and exist in an environment rich in unique and underutilized resources. This is a critical context in the state of Michigan, but it is not the only one. Currently, there are districts in Newaygo that experience graduation rates and MEAP pass rates as low as some of the most challenged districts in Detroit. Newaygo is a more rural context with a different set of assets and, as such, must consider the training of teachers differently.

Teacher Mentoring

Transitioning into a new position is critical to the continued success of a new teacher. While they may be eminently qualified to teach via their teacher preparation program, they will face adjustments that cannot be anticipated by the best of curricula. Providing young teachers with some guidance and support as they learn the ropes as a teacher and as a member of a new school culture is essential, and it is best provided by someone who has experience in the classroom. There appear to be two primary ways this is actively facilitated: (1) Senior teachers within the school or district are given the responsibility of providing this mentoring as part of their regular responsibilities, or (2) a curriculum specialist is assigned to assist all teachers in a given academic area across the district (i.e., a physics specialist to work with all physics teachers).

Teacher Continuing Education

Professional development is typically a euphemism for continuing education for teachers and is offered or required through the school, district, or state. Professional development at this level can take two main forms: (1) advanced instruction in an approved graduate program working toward a master's degree or above and (2) professional development opportunities offered in small increments that either recognize current individual efforts or promote the development of skills and knowledge through one-time workshops and meetings. Like many professions, the field of education is constantly changing, evolving, and improving, and in order to keep pace with the developing trends, it is important that teachers keep pace. It is within these efforts that relevance and substance become important. There are two approaches that capture each of these concepts well.

Consider the summer immersion experience for science teachers at **Wright State University**. During the course of the summer, teachers were introduced to the inquiry-based modes of teaching by attending classes taught with those approaches. The advantage of this method is twofold: the approach is being modeled for the teachers and it is based upon the curricula they are intending to teach, which reinforces their knowledge of the material. Every teacher who volunteered for the summer experience was given a stipend to begin and a small equipment budget at the end of the course.

⁴ The University of Southern California runs this center out of the Rossier School of Education and can be found at <http://www.usc.edu/dept/education/CUE/>.

⁵ The Center for School Improvement is located at Boston University and can be found at <http://www.bu.edu/education/csi/>.

⁶ Chicago has at least two centers. The first located at DePaul University (<http://teacher.depaul.edu>) and the second is at the University of Chicago (<http://usi.uchicago.edu/aboutnew.html>). Based upon descriptions, the DePaul program focuses on teacher preparation while the University of Chicago emphasizes research in the urban school context.

Another approach to professional development is to provide opportunities for teachers to meet with others in their academic discipline to discuss problems, challenges, successes, and innovations. As with most professions, the more specialized you become, the greater the need for colleagues and peers who share similar interests and experiences. The Wright State program provides this benefit, but it can be done on a smaller scale. For example, all trigonometry teachers across Calhoun County could gather to present promising practices and curricular innovations to one another.

It is essential to keep in mind that while incentives are important, teachers want to succeed in the classroom, and it might not be the lack of incentive alone that serves as a barrier to participation. For example, it is common to provide release time for teachers to attend day-long or half-day training seminars. This approach appropriately recognizes the value of the teachers' time, but it fails to recognize that good teachers prefer not to be away from their classes during school hours. This might suggest that summer or break experiences are ideal. It also might suggest that whatever experience is offered is not seen as directly relevant to work in the classroom. When this is the case, greater effort should be made to draw those connections and to provide opportunities that are integrated in a meaningful way and not just a patchwork of dissociated, albeit valuable, experiences.

Teacher Promotion

One of the unique challenges of the teaching profession is that there is not much upward mobility. Beyond the probationary period or possibly department chair, there are few opportunities to move up the ladder and remain a teacher. For some, this may mean boredom and burnout. It may not be possible to create new positions for advanced teachers, but there are responsibilities that could evolve over time. The roles of mentor and curriculum specialist are two possibilities. But in order for these roles to be considered, it is also important to reallocate previous responsibilities. For example, a seasoned teacher may provide mentoring for 3–4 new teachers in the school; in exchange, their teaching load would be reduced to offset that new responsibility.

REFERENCES

- Darling-Hammond, L. (2000). *Solving the dilemmas of teacher supply, demand, and standards: How we can ensure a competent, caring, and qualified teacher for each child*. New York: National Commission on Teaching and America's Future.
- Education Commission of the States. (2000). States Conducting Student Competency Testing for High School Graduation (Exit Exams) (pp. 1–21). Denver, CO.
- Field, G. (2002). MCAS. Retrieved July 12, 2004, from <http://www.electfield.com/Issues/mcas.pdf>.
- Goldhaber, D. D., & Brewer, D. J. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis*, 100(1), 129–145.
- Haycock, K. (1998). Good teaching matters...a lot. *Thinking K-16*, 3, 3–14.
- Massachusetts Department of Education. (2004). *Education reform progress report*, from <http://www.doe.mass.edu/edreform/edreformreport/erprogrpt597-1.html>.
- National Center for Education Statistics. (1995). Table 152. State requirements for high school graduation, in Carnegie units: 1980 and 1993.
- National Center for Education Statistics. (2002). Table 152. State requirements for high school graduation, in Carnegie units: 2001.
- National Commission on Excellence in Education. (1983). *A Nation At Risk*. Washington, DC: Department of Education.
- Sanders, W. L., & Horn, S. P. (1998). Research findings from the Tennessee value-added assessment system (TVAAS) database: Implications for educational evaluation and research. *Journal of Personnel Evaluation in Education*, 12(3), 247–256.
- U.S. Census Bureau. (2000). *Highlights from the Census 2000 demographic files*. Retrieved April 5, 2003, from <http://factfinder.census.gov/>.
- Wenglinsky, H. (2000). *How teaching matters: Bringing the classroom back into discussions of teacher quality*. Princeton, NJ: Educational Testing Service.

Table 152.—State requirements for high school graduation, in Carnegie units: 2001

State	All courses	Subject areas									First graduating class to which these requirements apply	Minimum competency test is required to graduate	Notes
		English/language arts	Social studies	Mathematics	Science	Physical education/health	Arts/vocation	Technology	Electives	Other courses			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Alabama	24	4	4	4	4	1.5	0.5	0.5	5.5	—	2000	Yes	Social studies requirement consists of 1 unit of world history/geography, 2 units of U.S. history/geography, .5 units of economics and .5 units of government. Math requirement includes algebra I and geometry. Science includes 1 unit of biology and 1 unit of physical science. Physical education requirement consists of 1 unit of PE and .5 units of health. 6 levels of diploma offered. Numbers given are for basic academic program.
Alaska	21	4	3	2	2	1	0	0	9	—	1978	Yes (class of 2004)	PE requirement includes health or PE.
Arizona	20	4	2.5	2	2	0	1	0	8.5	—	1996	Yes (class of 2002)	English requirement includes .5 credits of the principles of speech and debate. Social studies requirement consists of 1 unit of world history/geography and 1.5 units of U.S./Arizona history and constitutions.
Arkansas	21	4	3	3	3	1	0.5	0	6	.5 (oral communication)	2004	No	Information is for College Preparatory diploma. 4th unit of mathematics for students seeking unconditional college admission will be required in 2004.
California	13	3	3	2	2	2	1	0	0	—	1989	Yes (class of 2004)	Social studies requirement consists of 1 unit of U.S. history/geography; 1 unit of world history, culture and geography; .5 units of American government and .5 units of economics. Science includes biological and physical sciences. Foreign language or American Sign Language may be substituted for visual/performing art credit.
Colorado ¹	—	—	—	—	—	—	—	—	—	—	—	No	—
Connecticut	20	4	3	3	2	1	1	0	6	—	2004	Yes	Social studies requirement includes .5 units of civics and American government. By September 1, 2002, each local and regional board of education must specify basic skills required for graduation for the graduating class of 2006 and thereafter. Plans must include criteria for assessing student competencies. The results of the 10th grade Connecticut Academic Performance Test cannot be used as the sole basis for the graduation criteria but must be included as one alternative.
Delaware	22	4	3	3	3	1.5	0	1	3.5	3 (career pathway)	2000	Yes	PE requirement includes .5 units of health and 1 unit in PE. Level of diploma (basic, standard, or distinguished) partially determined by students' score on Delaware Student Testing Program (DSTP).
District of Columbia	23.5	4	3.5	3	3	1.5	2	0	4.5	2 (foreign language)	1995	No	Social studies requirement consists of 1 unit of U.S. history, 1 unit of world history, .5 units of U.S. government, .5 units of world geography and .5 units of D.C. history/government. Math requirement includes algebra. Science requirement includes 1 unit of laboratory science. Students must complete 100 hours of community service in order to graduate.
Florida	24	4	3	3	3	1.5	1	0	8.5	—	2003	Yes (class of 2003)	Social studies requirement includes 1 unit of American history, 1 unit of world history, .5 units of economics and .5 units of American government. Two science units must have a laboratory component. Math requirement includes successful completion of algebra I. The PE requirement includes .5 units of life management skills and 1 unit of PE. Students must achieve a 2.0 GPA to graduate.
Georgia ^{2,3}	22	4	3	4	3	1	0	0	4	3 (2 units of foreign language; plus 1 unit of the following: computer technology, fine arts, technology/career preparatory, or 1 additional unit of foreign language)	2001	Yes	College Preparatory Plus Diploma requires 2 more academic electives.

Table 152.—State requirements for high school graduation, in Carnegie units: 2001—Continued

State	All courses	Subject areas									First graduating class to which these requirements apply	Minimum competency test is required to graduate	Notes
		English/language arts	Social studies	Mathematics	Science	Physical education/health	Arts/vocation	Technology	Electives	Other courses			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Hawaii	22	4	4	3	3	1.5	0	0	6	.5 (guidance)	1997	No	Social studies requires 1 unit of U.S. history and government, 1 unit of world history and culture, .5 unit of world geography, .5 unit of modern history of Hawaii, and 1 unit of social studies elective. PE requirement includes .5 units of health and 1 unit in PE.
Idaho	21	4.5	2.5	2	2	0.5	0	0	8.5	1 (humanities)	2001	No	Social studies requirement includes 1 unit of U.S. history, 1 unit of government and .5 units of economics. Science requirement includes 1 unit of laboratory science.
Illinois	16	3	2	2	1	0.5	0	0	7.5	1 (music, art, foreign language, American sign language, or vocational education)	1988	Yes	Social studies requirement includes 1 unit of U.S. history or a combination of U.S. history and American government. Physical education must be provided daily, and PE credit assignments are to be determined locally. Students must take .5 unit or equivalent of health education. Local school district must provide the following: 9 weeks, 50 minutes a day, of consumer education; conservation of natural resources; driver and safety education with 30 hours of classroom instruction and 6 hours of behind the wheel. Elective requirements are determined locally, but must fulfill 16 total credit minimum.
Indiana	20	4	2	2	2	1	0	0	8	1 (language arts, science, mathematics, social studies, or technology competency)	2004	Yes	1 unit of English/language arts may be from business studies, technology, family and consumer sciences, technology education, or vocational-technical courses. PE requirement includes health and PE. Students who successfully complete a Level III foreign language course may have 1 unit of the language arts requirement waived.
Iowa ¹	—	—	—	—	—	—	—	—	—	—	—	No	—
Kansas	21	4	3	2	2	1	0	0	9	.5 (Kansas history; taken between 7th and 12th grades)	2001	No	Social studies requirement includes 1 unit of U.S. history and .5 units of U.S. government. Science includes 1 unit of laboratory course. PE requirement may include .5 units of health. Kansas also requires .5 units of Kansas history taken between the 7th and 12th grades.
Kentucky	22	4	3	3	3	1	1	0	7	—	2002	No	Social studies includes world civilizations, world geography, U.S. history, government, and economics. Mathematics includes algebra I, geometry and one elective. Science includes life science, physical science, and earth and space science. PE requirement includes .5 unit of health and .5 unit of PE. A local board of education may substitute an integrated, applied, interdisciplinary or higher level course for a required course.
Louisiana	23	4	3	3	3	2	0	0	8	—	2003	Yes	Social studies requirement consists of 1 unit of American history, 1 unit of world history or geography or civilization, .5 units of civics, and .5 units of free enterprise. Math includes a maximum of 2 entry level courses. Science requirement consists of 1 unit of biology I, 1 unit of physical science and 1 unit from any other course not already taken from physical science. PE includes .5 units of health and 1.5 units in PE.
Maine	16	4	2	2	2	1.5	1	0	3.5	—	1989	No	Social studies requirement includes 1 unit of American history, and .5 unit of Maine studies (if not taken between grades 6–8). Science requirement includes 1 unit of laboratory study. PE includes .5 units of health and 1 unit in PE. Student must pass computer proficiency standards.

Table 152.—State requirements for high school graduation, in Carnegie units: 2001—Continued

State	All courses	Subject areas									First graduating class to which these requirements apply	Minimum competency test is required to graduate	Notes
		English/language arts	Social studies	Mathematics	Science	Physical education/health	Arts/vocation	Technology	Electives	Other courses			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Maryland	21	4	3	3	3	1	1	1	3	2 (foreign language or advanced technology)	1997	Yes (class of 2007)	Social studies requirement consists of 1 unit of U.S. history, 1 unit of world history, and 1 unit of government. Math requirement includes 1 unit of algebra and 1 unit of geometry. Science requirement includes laboratory experience. PE requirement includes .5 unit of health and .5 unit of PE.
Massachusetts ¹	—	—	—	—	—	—	—	—	—	—	—	Yes (class of 2003)	American history and civics and PE required.
Michigan ¹	—	—	—	—	—	—	—	—	—	—	—	No	Students must complete one course in government/civics. Although not required for graduation, state law requires health and physical education to be provided for all students.
Minnesota	24	5	4	3	2	3	0	0	3	4 (2 units of inquiry, 2 units of resource management)	(*)	Yes	Social studies requirement includes U.S. history, U.S. citizenship, diverse perspectives, and human geography. Science requirement includes biology, chemistry, earth and space systems, physics, and environmental systems.
Mississippi	20	4	3	3	3	0.5	1	1	4.5	—	2002	Yes (class of 2002)	Social studies requirement consists of 1 unit of world history, 1 unit of U.S. history, .5 units of U.S. government, and .5 units of Mississippi studies. Math requirement includes algebra I and geometry. Science must include biology I. There is no PE requirement, only .5 units of health.
Missouri	22	3	2	2	2	1	2	0	10	—	1988	No	Social studies requirement includes 1 unit of American history and .5 units of government. Arts education includes 1 unit of fine arts and 1 unit of practical arts (vocational/technical skills).
Montana	20	4	2	2	2	1	2	0	7	—	1993	No	In accordance with the policies of the local board of trustees, students may be graduated from high school with less than four years enrollment. Arts education includes 1 unit of fine arts and 1 unit of practical arts (vocational/technical skills).
Nebraska	—	—	—	—	—	—	—	—	—	—	1991	No	Nebraska requires a minimum of 200 high school credit hours (at least 80% of which must be taken in language arts, social studies, mathematics, science, PE/health, visual/performing arts, and foreign language).
Nevada ⁴	22.5	4	2	3	2	2.5	1	0.5	7.5	—	2003	Yes	Social studies requirement includes 1 unit of American government and 1 unit of American history. PE requirement includes .5 units of health and 2 units of PE. Computer literacy requirement may be waived by demonstration of competency. Data are for standard diploma.
New Hampshire	19.75	4	2	2	2	1.25	0.5	0.5	7	.5 (business/economic education)	1989	No	Social studies requirement includes 1 unit of U.S. and New Hampshire history and government. Science requirement is 1 unit of physical science and 1 unit of biological science. PE requirement includes .25 units of health and 1 unit of PE. Computer education requirement may be met through examination or course prior to high school.
New Jersey	22	4	3	3	3	0.75	2	0	6.25	2 (foreign language)	2005	Yes (class of 2004)	—
New Mexico	23	4	3	3	2	1	0	0	9	1 (communication skills or foreign language)	1990	Yes	Social studies includes U.S. history/geography, world history/geography, and government/ economics. Science requirement includes 1 lab component. With the approval of the local school board, participation on an athletic team or in an athletic sport during the school day may count toward fulfillment of the physical education required unit.

Table 152.—State requirements for high school graduation, in Carnegie units: 2001—Continued

State	All courses	Subject areas									First graduating class to which these requirements apply	Minimum competency test is required to graduate	Notes
		English/language arts	Social studies	Mathematics	Science	Physical education/health	Arts/vocation	Technology	Electives	Other courses			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
New York	22	4	4	3	3	2.5	1	0	3.5	1 (foreign language)	2005	Yes	Social studies requirement includes 1 unit of U.S. history and government, .5 units of government and .5 units of economics. Students may meet the learning standards in technology, either through a course in technology education or through an integrated course combining technology with mathematics and/or science. A commencement-level course in technology education may be used as the third unit of credit in science or mathematics, but not both. Data are for Regents diploma. Advanced Regents diploma available.
North Carolina ²	20	4	3	4	3	1	(³)	0	3	2 (foreign language)	2004	Yes (class of 2005)	4th mathematics credit required for 9th graders in the College/University Prep course of study entering high school in 2002–03. An Occupational Course of study with different requirements is available starting in 2000–01 for students with Individualized Education Plans. Students must demonstrate computer proficiency through state testing.
North Dakota ¹	17	4	3	2	2	1	0	0	5	—	N/A	No	Data are state minimums, but actual requirements are determined locally. N.D. Department of Education recommends 20 credits in order to graduate.
Ohio	21	4	3	3	3	1	0	0	7	—	2004	Yes (class of 2005)	Social studies requirement includes .5 units of U.S. history and .5 units of U.S. government. Science requirement includes 1 unit of biology and 1 unit of physical science. PE requirement consists of .5 units of PE and .5 units of health. Starting 9/15/01 one elective unit or 2 half-units must include business/technology, fine arts, or foreign language.
Oklahoma	23	4	3	3	3	0	2	0	8	—	2003	Yes	English/language arts requirement includes 1 unit of grammar/composition. Social studies requirement includes 1 unit of U.S. history, .5 units of Oklahoma history, a minimum of .5 units of U.S. government. Math requirement includes 1 unit of algebra I. Science requirement includes 1 unit of biology I. State strongly encourages students to complete 2 units of a foreign language.
Oregon	22	3	3	2	2	2	1	0	9	—	2001	No	English/language arts requirement includes 1 unit of writing composition. Arts/vocation requirement may be met by earning 1 unit in any one or a combination of applied arts, fine arts or foreign language.
Pennsylvania ⁵	—	—	—	—	—	—	—	—	—	—	N/A	Yes (class of 2003)	Beginning in 2002–03, in order to graduate, students shall demonstrate proficiency in reading, writing and mathematics on either state or local assessments in grade 11 or 12.
Rhode Island ²	18	4	2	3	2	0	0.5	0.5	4	2 (foreign language)	1990	No	Students must take 100 minutes per week of PE/health.
South Carolina ²	24	4	3	4	3	1	0	1	7	1 (foreign language)	2001	Yes	Social studies requirement includes 1 unit of U.S. history, .5 units of U.S. government and .5 units of economics. PE requirement may be met through participation in JROTC program. For students in a Tech Prep Program, 1 unit must be earned in occupation education instead of a foreign language. Demonstration of computer literacy before graduation also required.
South Dakota	22	4	3	2	2	0	1	0.5	8.5	1 (additional unit of either mathematics or science)	2004	No	English/language arts requirement includes 1.5 units of writing, 1.5 units of literature, .5 units of American literature and .5 units of speech. Social studies requirement includes 1 unit of U.S. history, .5 units of U.S. government and .5 units of geography.
Tennessee	20	4	3	3	3	1	0	0	6	—	1998	Yes	Science requirement includes 1 unit of life science and 1 unit of physical science. All science courses must incorporate lab experiences. One full year of computer education required at some time during high school career, no credit value assigned.

Table 152.—State requirements for high school graduation, in Carnegie units: 2001—Continued

State	All courses	Subject areas									First graduating class to which these requirements apply	Minimum competency test is required to graduate	Notes
		English/language arts	Social studies	Mathematics	Science	Physical education/health	Arts/vocation	Technology	Electives	Other courses			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Texas	22	4	3	3	2	2	0	1	5.5	.5 (speech), 1 (World History Studies, Geography Studies, or any science course approved by the State Board of Education)	2001	Yes	Social studies requirement includes 1 unit of world history or world geography, 1 unit of U.S. history, .5 units of U.S. government, and .5 units of economics. Math requirement includes algebra I. Science requirement must include 1 unit from biology, chemistry, or physics. PE requirement includes .5 units of health and 1.5 units of PE.
Utah	24	3	3	2	2	2	1.5	1	9.5	—	1997	Yes (class of 2005)	Required elective areas are divided into college entry or applied technology/job entry clusters. Information technology requirement optional. Library media skills integrated into subject areas.
Vermont	20	4	3	3	3	1.5	1	0	4.5	—	2002	No	Beginning in 2005 local school districts will have the option of fulfilling current Carnegie requirements with field of knowledge assessment. Field of knowledge assessment is part of Vermont's system of standards, which includes arts, language, and literature, history and social sciences, and science, mathematics, and technology.
Virginia	22	4	3	3	3	2	1	0	6	—	2002	Yes (class of 2004)	Data are for Standard Diploma. Beginning in 2004, Standard of Learning tests must be passed in 5 subjects areas.
Washington	19	3	2.5	2	2	2	1	0	5.5	1 (occupational education)	2008	Yes (class of 2008)	Social studies requirement consists of 1 unit of U.S. history/government, .5 units of Washington state history/government, and 1 unit of world history/geography. Science requires 1 unit of laboratory science. Each student shall complete a culminating project for graduation.
West Virginia	24	4	3	3	3	2	1	0	4	4 (career majors)	2003	No	Math requirement includes algebra I and 1 higher math. Science includes coordinated and thematic science and 1 higher science. PE requirement includes 1 unit of health and 1 unit of PE. Work-based learning experience (determined by local school district) required.
Wisconsin	13	4	3	2	2	2	0	0	0	—	2004	Yes (class of 2004)	PE consists of 1.5 units of PE and .5 units of health. State strongly encourages school boards to require additional 8.5 elective units. School boards may also require community service as a graduation criterion.
Wyoming	13	4	3	3	3	0	0	0	0	—	2003	Yes (class of 2003)	Social studies requirement includes history, American government and economic systems and institutions. Exit exam covers principles of the Constitutions of the U.S. and Wyoming.

—Not available or not applicable.

¹ Graduation requirements are determined locally.

² Data for College Preparatory Diploma.

³ Career Preparatory Diploma also available.

⁴ Graduation requirements are currently being phased in by local school districts. However, as of yet, no statewide deadline exists dictating when this should occur.

⁵ State minimum credit requirements have been phased out in Pennsylvania. Each school district (including charter schools) shall specify requirements for graduation in a strategic plan requiring state approval. To graduate, students must demonstrate proficiency in reading, writing, and mathematics on either state or local assessments aligned with state guidelines.

NOTE: Local school districts frequently have other graduation requirements in addition to state requirements. English/language arts—can include English, Reading, Literature, Creative Writing, etc. Mathematics—can include Basic Math, Algebra I and II, Geometry, Pre-Calculus, Calculus, Statistics, etc. Social studies—can include World History, U.S. History, Geography, Economics, Government, etc. Science—can include Biology, Chemistry, Physics, Anatomy, Earth Science, etc. Arts/vocation—can include Fine Arts, Practical Arts, Vocational, or Career Preparatory credits. Technology—can include Computer Literacy, Computer Technology, Technology Competency, etc.

SOURCE: State Boards of Education; and Education Commission of the States, *Clearinghouse Notes*, "High School Graduation Requirements" November 1996 and November 1998; Education Commission of the States, *Clearinghouse Notes*, "Choice of Schools: State Actions" June 1999. (This table was prepared June 2001.)