Part V. Capacity for Education Reform

The Education Reform Act set ambitious goals for change at the state and local levels of the public education system. It also made new demands on the state's teachers in the areas of curriculum design and standards-based teaching. In addition, in order for systemic reform to work, state and local education authorities must be able to share data and data analysis. This section of the Annual Report analyzes the education system's capacity to make these changes.

1. State Capacity

How has the Massachusetts Department of Education's role changed under Education Reform?

Prior to passage of the Massachusetts Education Reform Act, the state Department of Education's (DOE) main roles were to manage the certification of educators and to ensure district and school compliance with state and federal regulations (racial balance, special education, etc.). It also participated in implementing federally funded programs such as Title I compensatory education and the school lunch program.

In addition to increasing the state's share of education funding, the Education Reform Act expanded the state's role in public education in a wide range of ways.[54] The new state functions included the development of curriculum frameworks in core subject areas, assessment of students' mastery of the frameworks, creation of a system for holding schools and districts accountable for student performance, support for new forms of local school and district governance, collection and use of data to enhance the performance of the system, improvement of educator quality, expansion of early childhood education, and implementation of charter schools. All these changes assumed an ability to make and implement coherent state policy.

[54] The section on state capacity draws heavily on *An Analysis of State Capacity to Implement the Massachusetts Education Reform Act of 1993* (2001), sponsored by the Massachusetts Education Reform Review Commission and prepared by the University of Massachusetts Center for Education Policy.

What agencies besides the Department of Education have been involved in Education Reform?

Most of these new functions were taken on by the DOE. A few, such as charter schools, initially were assigned to the Executive Office of Educational Affairs (EOEA), but these moved to DOE when the EOEA was eliminated in 1996. A few other public agencies have been involved in Education Reform. These include the Governor's Office, the Division of Local Services within the Department of Revenue, the Massachusetts Education Reform Review Commission, and the Board of Higher Education.

The most important recent change to the state agencies involved with Education Reform has been the creation of the Office of Educational Quality and Accountability within the Governor's Office, which took place in 2001 (see Chapter 15, Section 55A of the Massachusetts General Laws, as amended). The EQA office is the successor to the Education Management Accountability Board. The Educational Management Audit Council (EMAC), appointed by the Governor, oversees the EQA office.

How have funding and staffing of the Massachusetts Department of Education changed over time?

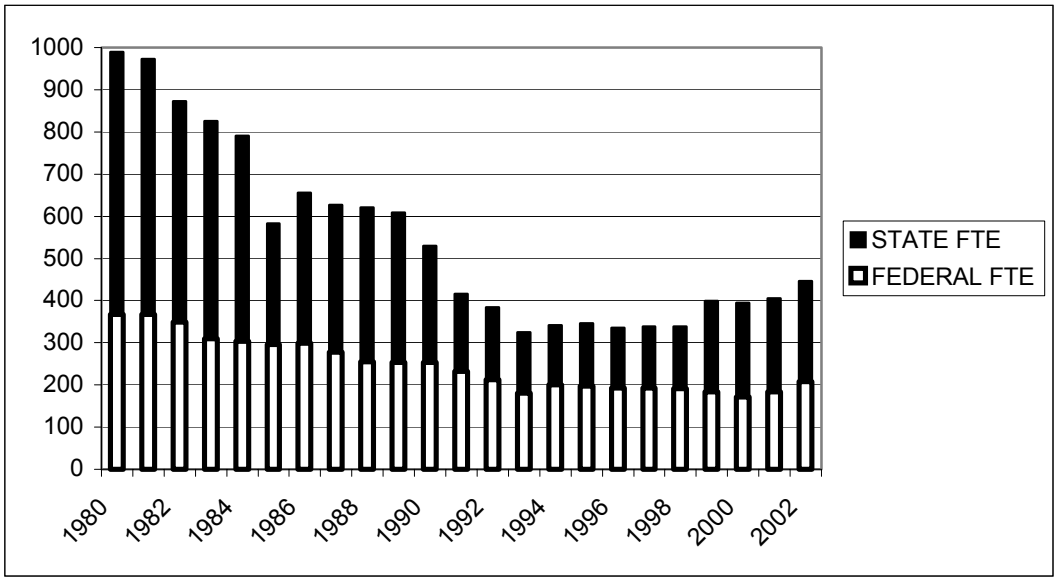
The overwhelming majority of state education spending passes through DOE to the local districts. For fiscal year 2002, DOE received about $3.9 billion in state funds. Of that funding, about 91% ($3.6 billion) was paid to districts as nondiscretionary state aid or special education aid.[55] Many in the state, and on the Education Reform Review Commission, believe that DOE does not have an administrative budget sufficient to allow it to carry out its responsibilities for leading and managing Education Reform implementation.[56]

Prior to passage of Education Reform, staffing of DOE was cut back by nearly two-thirds, in response to the recessions of the 1980s and early 1990s. Many of these cuts were to the DOE regional centers, which were eliminated entirely by 1991. DOE staffing reached its lowest level in 1993, and grew only very slowly in the first years of Education Reform implementation. Between 2001 and 2002, total DOE staffing increased from 405 to 446 FTE.

Because of the recession that began in 2001, many state employees have been encouraged to take early retirement. Future Education Reform Annual Reports should take careful note of whether and how early retirements have affected DOE staffing.

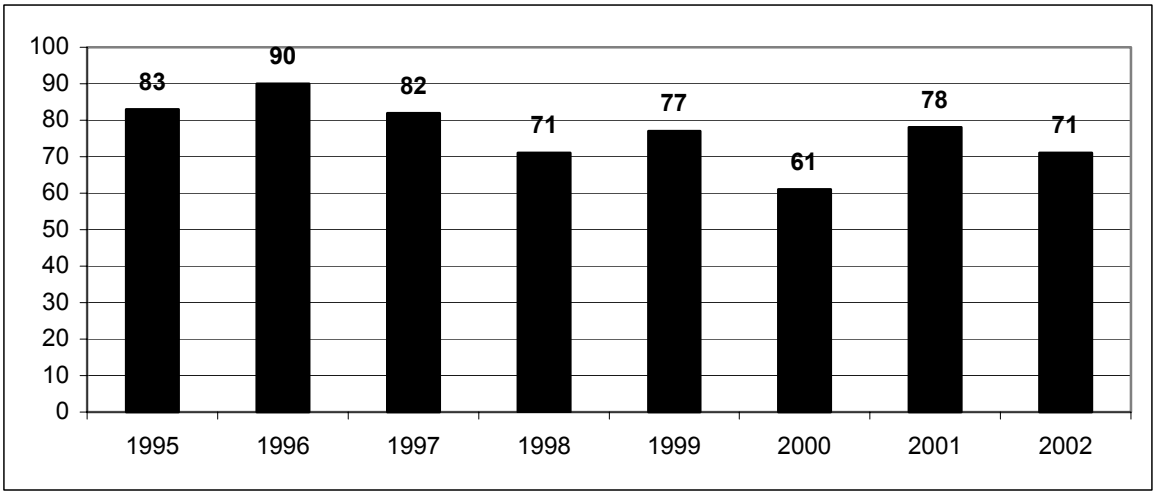
[55] Source: Massachusetts Board of Education, 2001 Annual Report.
[56] See *An Analysis of State Capacity to Implement the Massachusetts Education Reform Act of 1993.*

FIGURE 5.1: STAFFING OF THE MASSACHUSETTS DEPARTMENT OF EDUCATION (CONSULTANTS EXCLUDED)



Given the difficulty of creating new permanent state positions, the Department has often used temporary staff or consultants. Between fiscal 1995 (the earliest year for which data was available) and FY 2002, the largest number of consultants were working at the Department in fiscal year 1996. In June, 2002, 22 consultants were converted to full-time state positions.[57]

FIGURE 5.2: CONSULTANTS AT THE MASSACHUSETTS DEPARTMENT OF EDUCATION



[57] Source: Daniel Schreier, Professional Education Chapter President, Service Employees International Union (SEIU) Local 509.

How has the organization of the Department of Education changed over time?

Immediately after passage of Education Reform, DOE was reorganized to reflect its changed and enlarged responsibilities. In addition to the Commissioner and Deputy Commissioner, there were three Associate Commissioners, with responsibility for Education Improvement, Administration and Program Support, and Finance and Accountability. By 2000, there were two Deputy Commissioners (for Administration and Policy and for Academic Affairs), a Senior Associate Commissioner (also the General Counsel for the Department), and eight other staff at the Associate Commissioner level, for Accountability, Education Program Services, Educator Quality, School Readiness, Student Assessment Programs, School to Career, Charter Schools, and Mathematics, Science, and Technology/Engineering.

Many people inside and outside DOE saw the lack of a single Deputy Commissioner as problematic. In the past, the person in this role had been aware of what was going on across the agency, and able to make the final determinations about how responsibilities should be divided among different parts of the department.

In 2001, the DOE reorganized again, returning to the single Deputy Commissioner. As of the spring of 2002, there were three Senior Associate Commissioners (the General Counsel, the Senior Associate Commissioner for Student Achievement, and the Senior Associate Commissioner for Teaching and Learning) and six Associate Commissioners (for School Accountability and Targeted Assistance, School Finance and District Support, Special Programs and Services, Student Assessment, School Readiness, and Charter Schools). As of August, 2002, DOE was reorganizing again because of the staff losses caused by the state's early retirement incentives.

How have federal government policies affected the state's responsibilities and capacity for reform?

Although federal funds account for only about 7% of the nation's total education spending, they are extremely important at the state level. In fiscal year 2002, DOE received $ 663 million in federal funds, which made up about 14% of its total budget.

Implementation of federal policies has been a major role of state departments of education all around the country. Since the federal role first expanded in the middle of the 1960s, many state education department employees have been in federally funded positions working on federal programs. The staff cuts to DOE between 1980 and 1993 affected state-funded positions much more than federal ones. As a result, the percentage of DOE employees who are federally funded has increased. In 1980, about one third of DOE employees were federally funded. By 1993, there were more federally-funded than state-funded DOE staff. More recently, just under half of DOE's positions have been federally funded. Many of these federally funded staffers have not directly been part of MERA implementation. However, in a few cases, federally funded staff have been very important for Education Reform. The federal Goals 2000 program, which ended in 2001, paid for enhancements to professional development programs and also supported the sabbatical teachers who each spent two years at DOE helping develop and implement curriculum frameworks.

How will the No Child Left Behind Act affect the state's capacity for reform?

The centerpiece of the federal No Child Left Behind Act (NCLB), which President Bush signed into law in January of 2002, is a requirement that states administer standards-based assessments in reading and mathematics to all of their students in each year from third to eighth grade. Based on these assessments, schools must make "adequate yearly progress" towards bringing all students up to a "proficient" level of performance within twelve years and towards closing achievement gaps.

Schools that fail to make adequate yearly progress for two consecutive years must receive technical assistance from their districts. Districts also must allow students to transfer out of such schools. After three years of failure to progress, schools must allow students' parents to choose supplemental educational services, including private tutoring. The cost of the supplemental services, or of transportation to facilitate school choice, must come from the school's Title I aid. After four years of failure to progress, districts must take corrective measures, and after five years, schools must be reconstituted and required to set up an alternative governance structure.[58]

The requirements for supplemental educational services and school choice in low-performing schools (as identified by the states) have already taken effect. One early estimate was that 8,600 schools nationwide might be subject to these requirements.

States will be free to adopt their own definitions of "adequate yearly progress," which will differ from state to state. The U.S. Department of Education will subject each state's definition to a peer review process, which will begin in late 2002 or early 2003.[59]

Massachusetts is in a better position for implementing the new law than are many other states. The MCAS is the sort of test that the federal policy makers had in mind when they wrote the No Child Left Behind Act, and the state already has regulations on school and district accountability.

NCLB will also pose challenges, however. DOE is responsible for managing several large grant programs connected with it:

- Title I, Part A (Improving the Academic Achievement of the Disadvantaged)
- Title I, Part F (Comprehensive School Reform, previously the Comprehensive School Reform Demonstration Project)
- Title II, Part A (Improving Educator Quality)
- Title II, Part D (Enhancing Education Through Technology)
- Title IV, Part A (Safe and Drug-Free Schools)

[58] The No Child Left Behind Act is the most recent reauthorization of the Elementary and Secondary Education Act (ESEA), which was first passed in 1965. Title I is the largest source of ESEA funds and is intended to provide compensatory education for disadvantaged students.

[59] See R.L. Linn, E.L. Baker, & D.W. Betebenner, Accountability Systems: Implications of Requirements of the No Child Left Behind Act of 2002, *Educational Researcher*, August/September 2002; also L. Olson, Long-Awaited ESEA Rules are Released, *Education Week*, August 7, 2002.

- Title V (Innovative Programs)

The new law requires data to be reported and disaggregated in different ways than previously. Data collection and use has often been a weakness of Education Reform implementation (see below). Some of the details of the state's accountability system will also need revision.[60] The NCLB will also increase the work done by the Assessment cluster within DOE, which will now have to manage more tests and annual assessment data from more students.

Future editions of this Annual Report should assess the state's progress in implementing NCLB and how the NCLB mandates are interacting with the ongoing process of Education Reform.

NCLB also makes increased demands on districts, especially in funding and implementing corrective action for schools that do not make adequate yearly progress. Future editions of this Annual Report should track the extent to which districts are able to meet these demands.

2. State and Local Data Collection and Use

What data does the state collect from local districts?

All requests for data, including data required by the U.S. Department of Education, are unneled to local districts by the Massachusetts Department of Education.

Prior to 1993, districts reported data to the Massachusetts Department of Education 3-4 times a year. As MERA has been implemented over the past nine years, and as accountability has been emphasized, reporting requirements and paperwork have increased. Districts are now responsible for completing many more reports and plans throughout the year. These reports include:

- State End of the Year Report,
- School Choice Enrollment (October and April),
- Special Education Verification Report (December 1),
- District Improvement Plan,
- School Improvement Plans,
- Professional Development Plan,
- Student Success Plan,
- District Curriculum Accommodation Plan, and
- Career and Technical Education Report (March 15).

Districts also submit data for statistical reports including:

[60] See Associate Commissioner Juliane Dow's testimony before the state Board of Education at its meeting on March 26, 2002. Online at http://www.doe.mass.edu/boe/minutes/02/0326reg.pdf.

- Foundation Enrollment,
- School System Summary,
- Education Reform System Staff Report,
- Education Reform School Staff Report,
- Math, Science, & Technology Engineering School Report,
- Math, Science, & Technology Engineering District Report,
- Returned Dropout Rate,
- School Attending Children,
- Special Education Exit Data,
- State Ward/ Family Foster Care Claim Form,
- Year End School Indicator Report,
- Student Exclusion Record,
- Individual School Report (ISR),
- Technology Plan Update (Fall and Spring), and
- 35 Element Student Information Management System (3 times per year).

How is this information from districts used at DOE?

Some examples of the use of data from districts collected are to:

- comply/satisfy state and federal reporting requirements;
- calculate and determine state and federal grant allocations;
- analyze performance trends;
- identify student indicators;
- develop school and district profiles;
- respond to requests for data from legislators, general public, other states, media, etc.;
- conduct research;
- assist in the development and design of data collection instruments; and
- provide updates for presentations and briefings for the Commissioner, Board of Education, and agency staff.

What data are fed back to the districts from DOE?

MCAS data are generally sent back to districts several months after students take the assessment. Local educators have often complained about the length of time it takes for them to receive their scores, because they want to be able to use the data to help test-taking students and their teachers before the students get too far into the next grade.

In 2002, DOE provided districts with MCAS item analysis results, including raw scores for each student, by August 21. Five days later, DOE posted the tables for converting raw scores to scaled scores (the familiar MCAS scores that range from 200 to 280) on its website, which allowed districts to determine their students' actual scores.

Other than MCAS, there is no established schedule for the release of data to the districts and to the general public.

Data produced for annual reports, including Student Exclusions, Plans of High School Graduates, Dropout Rates, School and District Profiles and State Profile, are announced by the Commissioner via the Department's website and in his monthly communiqués to the districts.

Other reporting of the data depends on staff availability and requests made by individual districts.

In 2002, the Department of Education made the TestWiz software package available to all schools in the state. The software enables school personnel to generate MCAS score reports for individual students or classrooms, analyze how students performed overall on specific test items, and create a database on school MCAS performance from 1998 through 2001.

Some of the superintendents contacted in the course of our research this year suggested that data requests be streamlined. They said that administrators resent data requests because they feel as if the information isn't "going anywhere," and because they have found it difficult to get data out of DOE when they need it. These comments are consistent with findings of the Center for Education Policy's 2001 survey of administrators and teachers about state capacity to implement education reform.[61]

Are data available in a manner that is conducive to outside research?

The capacity of the state to make useable data available to researchers has been a work in progress. For example, the foundation funding formula was not developed with the school and district financial accounting system in mind; therefore, until adjustments were made in 1995, it was difficult to match actual expenditures to foundation-formula calculated expenditures.

In 2001 an electronic data collection system was fully implemented which is expected to shorten the interval between data collection and release. Prior to 2001, DOE staff spent significant amounts of time entering data from paper reports, chasing down delinquent districts, and resolving mis-entered data problems, which delayed the release of data.

Also in 2001, DOE began assigning individual student identification numbers to all students, which will now enable researchers to analyze state-collected student data along various demographic, geographic, and programmatic lines, while protecting individual student confidentiality. The Student Information System (SIS) offers great promise for future research on student and school performance.

The Massachusetts Department of Education website is a tremendous data resource. It is particularly useful for district and school-level MCAS data, which are readily available on the website. However, because the SIS was not implemented until 2001, researchers have limited options for tracking the progress of specific types of students prior to that year.

[61] See *An Analysis of State Capacity to Implement Education Reform,* Appendix 2.

3. Local Capacity

What resources do local school districts have for curriculum alignment and revision work?

The Education Reform Act assumed that local schools and school districts would have the capacity, in terms of staff time and expertise, to bring their curricula into alignment with the state's Curriculum Frameworks. Over the course of Education Reform implementation, many have questioned this assumption. Districts' capacity for curriculum alignment and revision appears to be highly variable.

Systematic data on local capacity for curriculum alignment across subject areas has not been collected. Ideally, data collection on local capacity should include the presence or absence of district-level staff who specialize in curriculum work, the amount of time that these staff members are able to devote to aligning and revising curriculum, resources made available to help teachers do curriculum planning (especially in small districts that do not have many district-level staffers), and resources for professional development to help teachers become comfortable with using new curricula in their classrooms.

The data that do exist on curriculum alignment and resources focus on mathematics. In 2000, the Massachusetts Teachers Association surveyed its local association leaders on the extent to which their districts had aligned curricula, purchased relevant materials, and provided professional development on the Massachusetts mathematics curriculum framework. Of the 56 local MTA leaders surveyed, 17% reported that their districts had done no alignment with the mathematics curriculum framework, and 29% reported partial alignment. In 54% of the surveyed districts, the entire K-12 math curriculum had been aligned with the frameworks.[62]

One reason for the slow progress of curriculum alignment may be an unmet need for help from mathematics curriculum specialists. According to data collected as part of the 1998 NAEP examination, only 34% of Massachusetts fourth graders and 54% of eighth graders had teachers who had access to a curriculum specialist in math. Nationwide, the comparable figures are 46% for fourth grade and 52% for eighth grade.[63]

[62] Massachusetts Teachers Association (2000). Partial Credit: Half-Way to Solving the Math Problem. Online at http://www.massteacher.org/html/Public_area/public_pics/the_math_study.pdf
[63] *Education Week* and the Pew Charitable Trusts, *Quality Counts 2001*, pp. 76-77.

Are local districts able to provide adequate resources for teaching and learning?

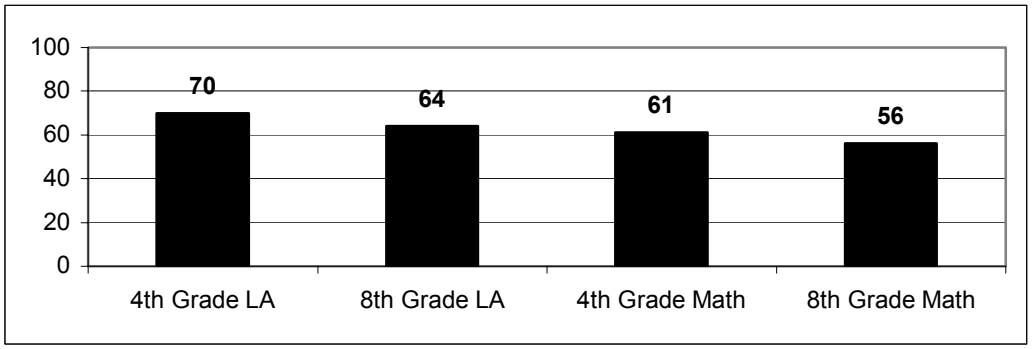
The question of whether students and teachers in all of the state's school districts have access to the appropriate textbooks, other materials, and instructional facilities (known generally as the "opportunity to learn" issue) is of paramount importance, especially as the deadline for implementing the competency determination approaches.

Systematic information on opportunity-to-learn resources is not readily available. This type of research, such as a survey of the state's districts, or a representative sample of them, on their textbooks, facilities, and instructional materials, would be a valuable contribution to the field.

The 1998 National Assessment of Educational Progress (NAEP) included a survey of teachers on issues such as resource adequacy and professional development. In the absence of a more extensive and recent survey, this may be the best available data on the opportunity to learn.

The NAEP survey results were included in the 2001 edition of *Quality Counts* and reported as a percentage of each state's students whose teachers said they had "all or most" of the resources they need. Based on these results, a majority of students in fourth and eighth grade appear to have adequate resources available to them. They are likelier to have adequate resources for language arts than for math, and fourth-graders are likelier than eighth-graders to have adequate resources.

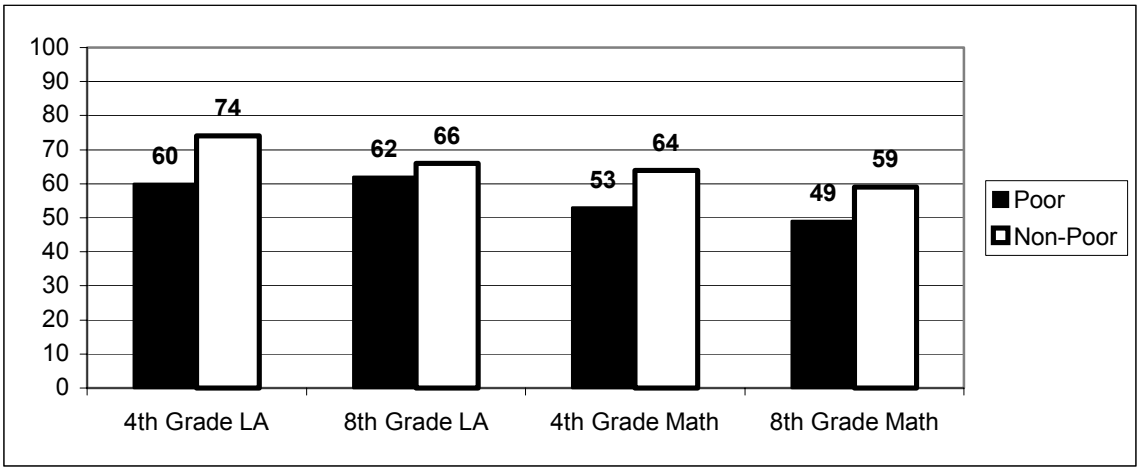
FIGURE 5.3: MASSACHUSETTS TEACHERS REPORTING HAVING "ALL OR MOST" OF THE RESOURCES THEY NEED



The data in Quality Counts also include a comparison of the resources available to "poor" students (defined as those eligible for free or reduced-price lunch) and "non-poor" students.

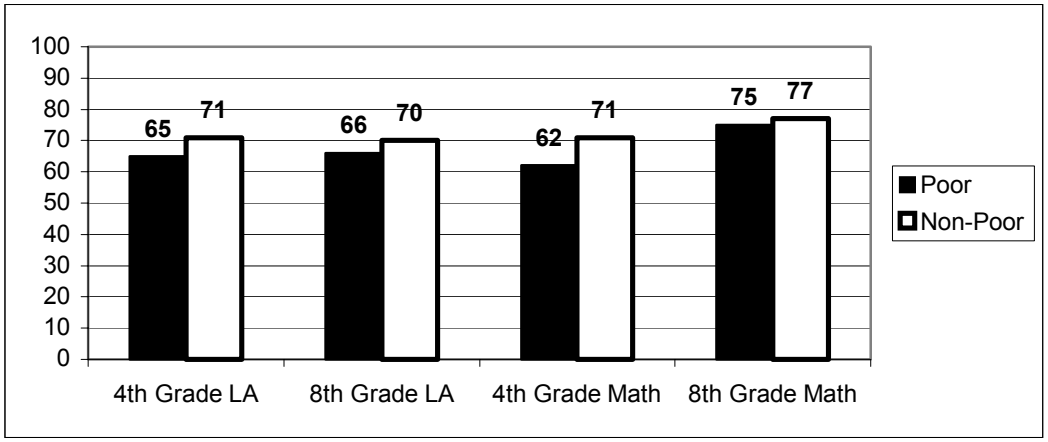
In both subject areas at both grade levels, poor students are less likely than non-poor students to have teachers who say they have all the resources they need. The gap is smallest for eighth-grade language arts and largest for fourth-grade language arts.

FIGURE 5.4: GAPS IN REPORTED ADEQUACY OF INSTRUCTIONAL RESOURCES—MASSACHUSETTS



Compared with all of the other states that participated in the 1998 NAEP, teachers of poor students in Massachusetts are less likely to report that they have all the resources they need. Except for 4th-grade language arts, teachers of non-poor students in Massachusetts are also less likely than the national sample to report that they have all the resources they need. The gaps between poor and non-poor students' resources in Massachusetts are also larger than the gaps found in the national sample.

FIGURE 5.5: GAPS IN REPORTED ADEQUACY OF INSTRUCTIONAL RESOURCES—ALL STATES IN 1998 NAEP



According to the MTA's study of implementation of the mathematics curriculum framework, half of the surveyed districts were not (as of 2000) using standards-based textbooks (p. 14).[64]

[64] The MTA survey asked respondents to indicate which textbooks their districts were using. The author of the study then determined whether or not the textbook was on the list of texts that the National Science Foundation's Project 2061 had identified as based upon learning goals derived from national and state standards or benchmarks.

How have local and school-level education governance changed since Education Reform?

MERA (M.G.L. Chapter 71, Section 37) changed the powers of districts' School Committees, mainly by reducing their role in personnel matters. Since 1993, School Committees' powers include hiring and firing the Superintendent of Schools and certain other senior personnel, reviewing and approving the district budget, and establishing district educational goals and policies. The Superintendent of Schools is responsible for hiring and firing building principals.

At the school level, MERA gave principals the right to hire and fire their schools' staffs (M.G.L. Chapter 71, Section 42), but also took away their right to tenure and collective bargaining (M.G.L. Chapter 71, Section 41). Each school now must have a School Council consisting of the principal, parents of current students, teachers, other community representatives, and, in high schools, students. The Councils' role is to meet with the principal to assist in identifying students' educational needs, reviewing the school's annual budget, and formulating a school improvement plan (M.G.L. Chapter 71, Section 59C).

According to the Educational Management Accountability Board's 2000 report, many districts had not yet implemented these changes fully. EMAB criticized districts for not putting in place "performance-based contracts for principals." Instead, superintendents seemed to be approving the same general contract for all of the principals in their districts.[65]

4. Educators

Ensuring that new teachers have the preparation they need to teach well is a key component of Education Reform implementation. MERA included tests that all aspiring teachers must pass in order to earn certification. It also initiated an alternate certification program for college graduates. Potential participants in the alternate certification program must pass the teacher tests before being admitted to the program.

[65] Educational Management Accountability Board (2000). *First Findings: The Summative Report of the Educational Management Accountability Board on the Audits of Massachusetts School Districts and the Impact of the Education Reform Act,* pp 28-30.

How many teachers are unlicensed or teaching subjects for which they are not certified?

Because schools rarely leave teaching positions vacant, they sometimes must hire teachers who are less highly qualified than would be ideal. In the 1999-2000 school year, the state issued 1,185 certification waivers.[66] According to the Northeastern University Center for Labor Market Studies, 4.8% of teachers in 2000 were uncertified in the fields in which they were primarily teaching. Of these teachers, 46% were continuing teachers, rather than new hires. In Fall, 2000, 28% of all newly hired middle and high-school teachers were hired to teach in fields for which they were not certified. 6.6% of secondary-school and 6.5% of special-education teachers were working in fields for which they lacked certification. The largest proportions of uncertified teachers were in technology, reading, foreign languages, industrial arts, chemistry, and physics.[67]

The Massachusetts Department of Education collects data on the number of Grades 7-12 teachers whose assignments include mathematics, science, or technology and engineering teaching, who are certified or uncertified in those fields. The following charts are based on data gathered in DOE's 2000-01 Mathematics, Science, and Technology/Engineering Indicators Survey.

The DOE's survey separated teachers in these fields into two categories, those with a 50% or more assignment to a particular subject area and those with a less than 50% assignment in a particular subject area. (The same individual teacher may be in both categories in different subject areas—for example, a grade 9-12 teacher assigned to 3 Math classes, 1 Biology class, and 1 Chemistry class would be included in the "50% or more" category for Mathematics as well as the "less than 50%" categories for both Biology and Chemistry.[68])

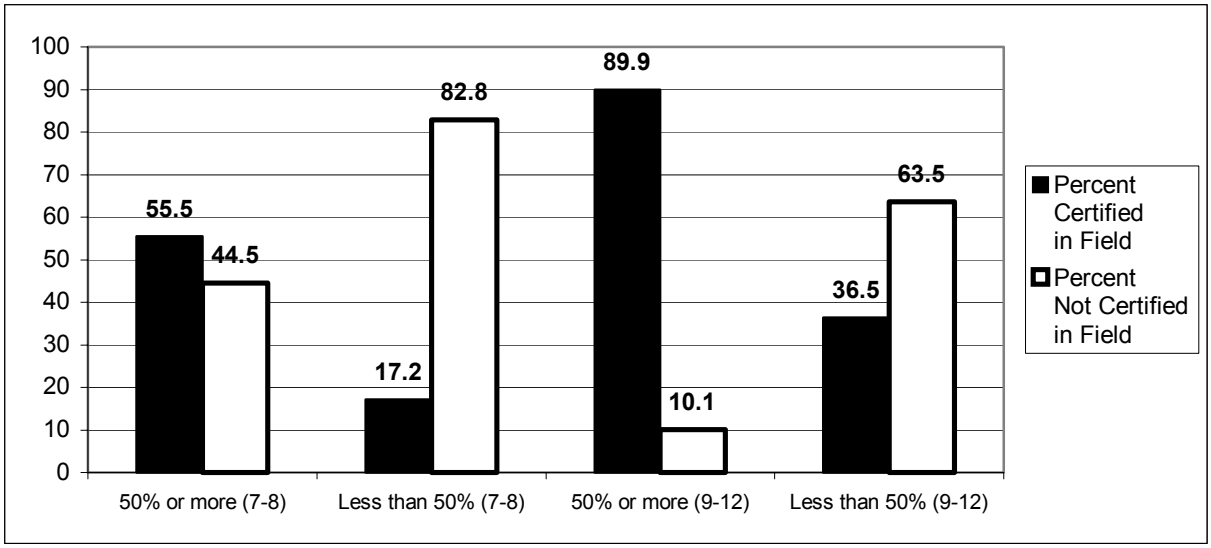
On the whole, grade 9-12 mathematics, science, and technology/engineering teachers are more likely to have subject-area certification than grade 7-8 teachers. Grade 9-12 teachers are also more likely to have subject-area certification for subjects in which they have a 50%-or-more assignment.

[66] Abeille, A., Hurley, N., & Nesbitt, J. *Teacher Supply and Career Development: Positive Pathways for Massachusetts.* Report prepared for the Massachusetts Education Reform Review Commission, 2002.
[67] Neeta P. Fogg & Paul E. Harrington, *Teacher Labor Market Imbalances in Massachusetts: A Review of the Evidence.*
[68] David Perda of the Massachusetts Department of Education provided this information.

Mathematics

Slightly more than half of teachers in grades 7-8 with a 50%-or-more assignment in mathematics have mathematics certification, as do nearly 90% of teachers with a 50%-or-more assignment in mathematics in grades 9-12. For teachers with a less-than-50% assignment in mathematics, these proportions fall to 17.2% and 36.5%, respectively.

FIGURE 5.6: CERTIFIED v. UNCERTIFIED MATHEMATICS TEACHERS, GRADES 7-12



Science and Technology/Engineering

At the middle-school level, nearly three-fourths of teachers with 50%-or-more assignments in technology/engineering and about two-thirds of teachers with 50%-or-more assignments in science have certification in their subject areas. Over half of teachers with less-than-50% assignments in technology/engineering are certified in their subject areas; however, about three-fourths of teachers with less-than-50% assignments in science do not have subject-area certification.

FIGURE 5.7: CERTIFICATION OF SCIENCE TEACHERS, GRADES 7-8

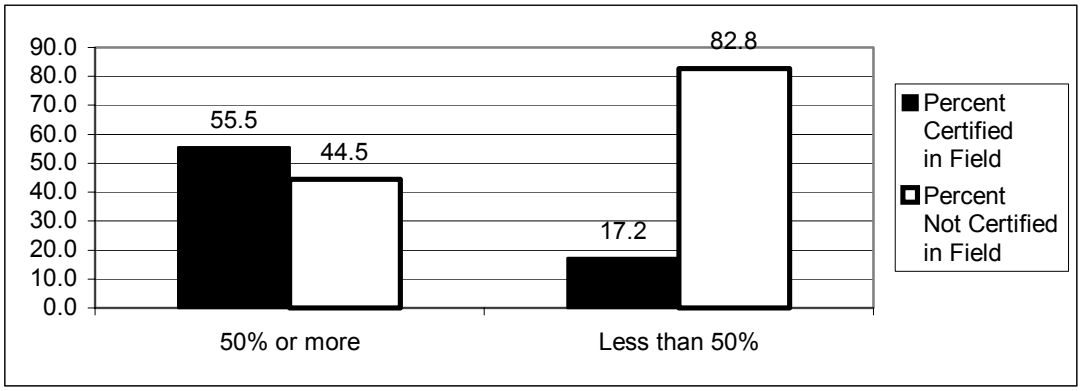
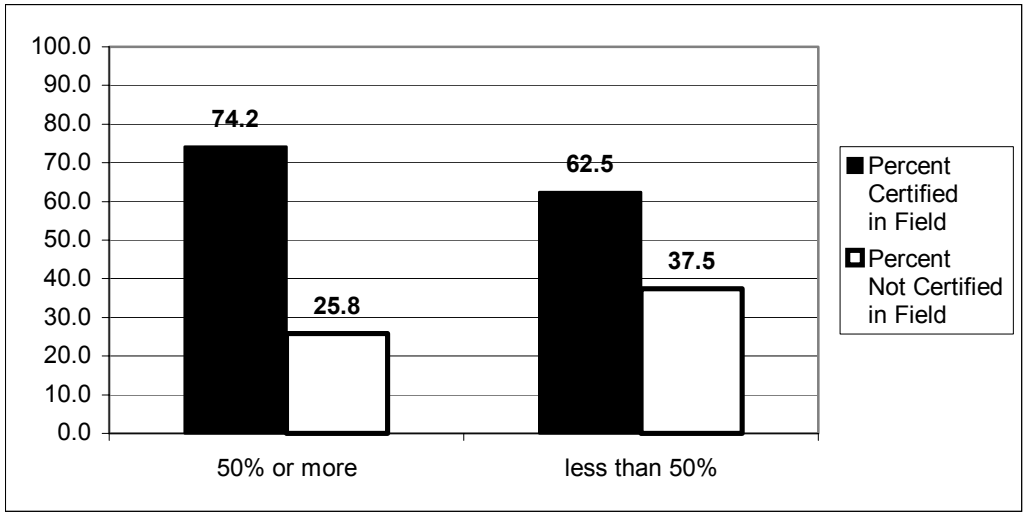
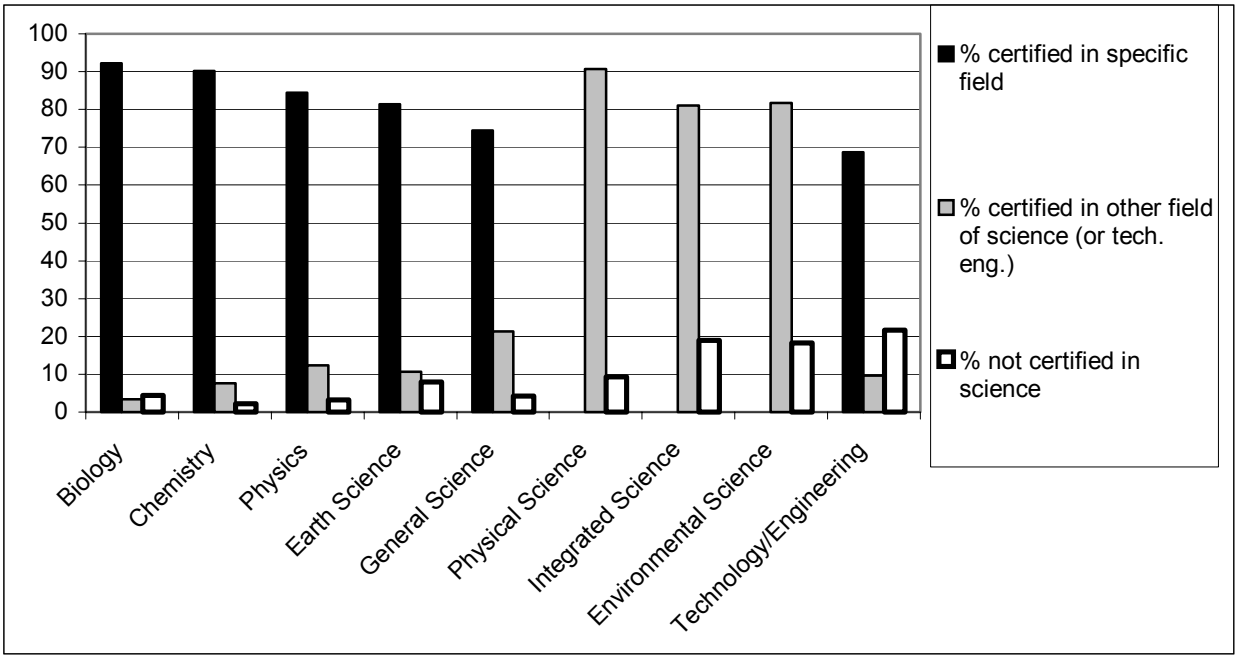


FIGURE 5.8: CERTIFICATION OF TECHNOLOGY/ENGINEERING TEACHERS, GRADES 7-8



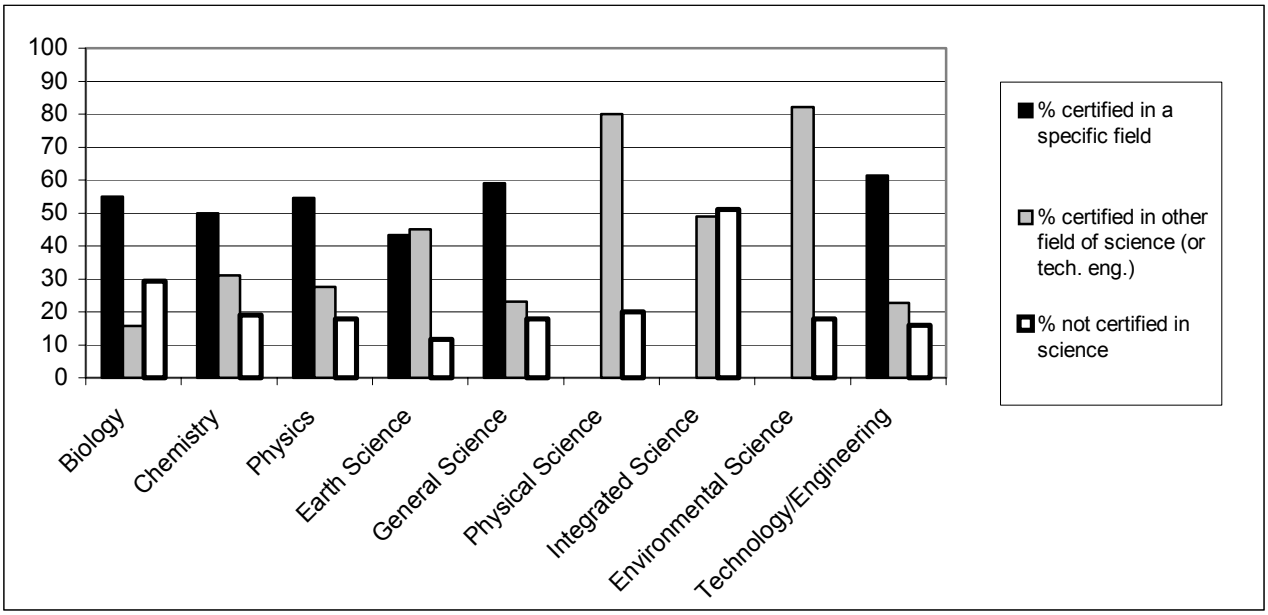
At the high-school level, at least two-thirds of teachers with 50%-or-more assignments in biology, chemistry, physics, earth science, general science, and technology/engineering have certification in their specific subject area. Large majorities of teachers with 50%-or-more assignments in physical science, integrated science, and environmental science have certification in some science subject area.

FIGURE 5.9: CERTIFICATION OF TEACHERS WITH 50% OR MORE ASSIGNMENTS IN SCIENCE FIELDS, GRADES 9-12



Large majorities of teachers with less-than-50% assignments in each of the science fields are certified either in those specific fields or in other science fields.

FIGURE 5.10: CERTIFICATION OF TEACHERS WITH LESS THAN 50% ASSIGNMENTS IN SCIENCE FIELDS, GRADES 9-12



Teacher Certification Summary

Of teachers with 50%-or-more assignments in all fields of Mathematics, Science, and Technology/Engineering for Grades 7-12, 70% have the specific subject-area certification for their assignments. Another 20% are certified to teach in some science field but not the one in which they have a 50%-or-more assignment, and 10% lack certification for their teaching field or for another science field.

Of teachers with less-than-50% assignments in all fields of Mathematics, Science, and Technology/Engineering for Grades 7-12, 30% have the specific subject-area certification for their assignments. 20% are certified to teach in some science but not the one they are teaching, and 50% lack certification for their teaching field or for another science field.

In terms of numbers, in the 2000-01 school year, there were 1,607 teachers with a 50%-or-more assignment in mathematics, science, or technology/engineering in grades 7-12 who did not have certification in mathematics or science. About half of these teachers were in middle-school mathematics. There were 1,075 teachers with a less-than-50% assignment in mathematics, science, or technology/engineering in grades 7-12 who did not have certification in mathematics or science.

According to the "Teachers on Waivers" report submitted by Massachusetts to the U.S. Department of Education,[69] less than one percent of all teachers in the state are covered by "any temporary or emergency permit, license, or other authorization that permits an individual to teach in a public school classroom without having received an initial certificate or license from that state or any other state."

What percentage of aspiring teachers pass the Massachusetts Test for Educator Licensure?

Pass rates rose after the test was first administered in 1998 and have since stayed relatively constant.

TABLE 5.1: PASS RATES ON MASSACHUSETTS TEST FOR EDUCATOR LICENSURE

Date	Communication & Literacy	Subject	Both
April 1998	51%	62%	41%
April 1999	67%	72%	57%
June 1999	71%	68%	57%
October 1999	67%	67%	53%
June 2000	65%	66%	54%
October 2000	70%	69%	56%
January 2001	71%	72%	62%
April 2001	67%	71%	61%
June 2001	60%	66%	52%
September 2001	75%	64%	60%
December 2001	69%	65%	59%
February 2002	70%	66%	58%

Title II of the Higher Education Act as reauthorized in 1998 requires higher education institutions and state education departments to report a variety of data on teacher preparation, including prospective teachers' pass rates on certification tests. States must also have a set of criteria in place by which teacher preparation programs can be identified as underperforming. To date, no programs in Massachusetts have been declared to be underperforming. Future editions of this report should track the evolution of accountability for teacher preparation programs.

What professional development opportunities have been made available to teachers?

The legislature, in response to MERA, has earmarked a portion of Chapter 70 funds to local districts specifically for professional development, on a per-student basis. Local teachers, schools, and districts determine how these funds are spent, and teachers collect Professional Development Points from state-approved providers. The state thus is able to collect information on the quantity of

[69] "Teachers on Waivers: Massachusetts." Available on Title II Website: http://www.title2.org/scripts/statereports/rptHome.asp

professional development activities but relatively little is known about the alignment of professional development with state standards and the quality/impact of services received.

According to data published in *Quality Counts 2001*, Massachusetts is one of 38 states that requires teachers to participate in professional development as a condition of recertification, and one of 7 states where at least some of those professional development activities must be in the teacher's subject area. Massachusetts has one of the nation's highest state spending levels on teacher professional development. It is one of 24 states in which state professional development money is available to all local education authorities. According to 1999-2000 data, the state spent $1,686 per teacher on professional development. This was second only to Alaska, and much higher than most of the other states.[70]

Information on teacher professional development participation collected as part of the 1998 NAEP paints a mixed picture. According to the NAEP survey, 33% of fourth-graders and 39% of eighth-graders had language arts teachers who reported participating in more than 15 hours of professional development in language arts over the previous year. The overall figures for the states that participated in that NAEP were 34% and 31%, respectively. In mathematics, 38% of fourth-graders and 68% of eighth-graders had teachers who reported participating in more than 15 hours of professional development in mathematics or mathematics education during the previous year. The corresponding figures for all states participating in NAEP were 28% and 48%, so mathematics professional development seems to be more prevalent in Massachusetts than in many other states.[71]

How do school districts organize and provide professional development?

In the summer of 2001, the University of Massachusetts Center for Education Policy conducted a survey of districts on professional development issues.[72] The survey was sponsored by the Department of Education's Office of Educator Quality.

Of the 53 districts surveyed, 10 had a designated director, coordinator, or office for professional development. In 18 districts, the associate superintendent for curriculum and instruction was also in charge of professional development. In 9 districts, the superintendent was directly involved in leading professional development. In eight districts, it was part of the job of the curriculum director or coordinator.

The number of professional development days provided by the districts ranged from none to 7, with a mean of 3.1.

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[70] The source for this information is National Center for Education Statistics, *Early Estimates of Public Elementary and Secondary Education Statistics, School Year 1999-2000.* Cited in *Education Week* and the Pew Charitable Trusts, *Quality Counts 2001*, p.76.

[71] Source: Quality Counts 2001.

[72] A.M. Churchill, A. Effrat, C.C. Brooks, M. Ryan, J. Spurr (2001). A Survey of Massachusetts Professional Development Directors. Center for Education Policy, University of Massachusetts, Amherst.

In 43.8% of the districts surveyed, professional development providers were the district's own teachers. Other providers included consultants (29.7%), higher education institutions (9.3%), educational collaboratives (6.8%), other school districts (5.6%), and the Department of Education (4.3%).

Two studies released in 2000[73] faulted local districts' role in professional development. According to these reports, while districts are required by MERA to submit annual Professional Development Plans to the Department of Education, very few have actually met this requirement, and the plans that have been submitted generally lack specific information. Many districts have failed to spend the recommended amounts on professional development, and also have not complied with the requirement that they report to the Department of Education if they do not choose to spend at the recommended level.

What have been districts' priorities for professional development?

The leading priorities cited in the Center for Education Policy survey were literacy, English Language Arts/reading and writing across the curriculum, mathematics, standards-based instruction, information and instructional technology, inclusion/accommodation of special education, at-risk, and ESL students, curriculum design/alignment, differentiated instruction, instructional strategies/pedagogy, and MCAS results analysis. Districts seemed to be putting slightly more emphasis on content than on process or pedagogy.

When asked whether recent changes in requirements for teacher recertification had affected their professional development offerings, 17 districts said "not at all" or "a little," 22 said "moderately," and 9 said "a great deal."

[73] Massachusetts Teachers Association (2000); Educational Management Audit Board (2000) First Findings: The Summative Report of the Educational Management Accountability Board on the Audits of Massachusetts School Districts and the Impact of the Education Reform Act.

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