School Libraries and MCAS Scores

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by

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"What a school thinks about its library is a measure
of what it thinks about education."

--Harold Howe
former U.S. Commissioner of Education

Executive Summary
School Libraries and MCAS Scores

School libraries and student achievement are strongly related. The results of the Simmons Study of school libraries, based on a statewide survey, confirm the value of school libraries. The findings from the Simmons Study can be summarized as follows:

1. At each grade level, schools with library programs have higher MCAS (Massachusetts Comprehensive Assessment System) scores.
2. At each grade level, students score higher on MCAS tests when there is a higher per pupil book count.
3. At each grade level, schools with increased student use have higher MCAS scores.
4. At each grade level, school libraries with more open hours score higher on the MCAS tests.
5. At the elementary and middle/junior high school levels, students score higher on the MCAS tests when there is a library instruction program.
6. At the elementary and middle/junior high school levels, average MCAS scores are higher in schools with larger per pupil expenditures for school library materials.
7. At the elementary and high school levels, students who are served by a full-time school librarian have higher MCAS scores than those in schools without a full-time librarian.
8. At the elementary and high school levels, library staff assistance (nonprofessional help) makes a positive difference in average MCAS scores.
9. At the elementary level, students score higher on the MCAS tests when the library is aligned with the state curriculum frameworks. (This fact is especially true in schools that have a high percentage of free school lunches.)
10. At the high school level, schools with automated collections have higher average MCAS scores.

The Setting. Massachusetts does not have a school library recession; we have a school library* depression! And that depression has been long and deep. This school library depression has compromised the quality of education in our state, including the full implementation of the state curriculum frameworks and satisfactory results for many children on the MCAS (Massachusetts Comprehensive Assessment System) tests. The lack of school libraries in our state seriously challenges our system of public education, which has as one of its core features—equalized educational opportunity. Equal educational opportunity lies at the heart of our great educational experiment in this country—a free education for all on equal terms. Horace Mann, the father of modern education, spoke for every child when he called for good schoolhouses, intelligent school boards, competent teachers, and a widespread public commitment to universal education. Every child would have the opportunity to learn, to achieve, to aspire, to become a moral person through the experience of the common school.

How well we are achieving this today in Massachusetts is the topic for our symposium. MCAS test scores weigh on everyone's mind these days. When discussing strategies to improve student performance on MCAS tests, we ask, "Please talk turkey." Today, I am going to talk turkey (to present evidence) of a direct link between MCAS scores and the existence (or quality) of school libraries. A strong body of evidence shows that at all educational levels school libraries directly influence student achievement.

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* The term "school library" is used throughout this paper. It is understood that this term includes school library media center, instructional resources center, or any other center that functions as a school library. The term was chosen to be in line with the new Massachusetts state certification regulations, which use the terms "library" and "library teacher."

In 1987, School Match, a company that helps businesses to relocate executives, singled out expenditures for school libraries as an area that relates to student achievement. A 1987 news column in *American Libraries* reported the School Match conclusion this way: "Of all the expenditures that influence a school's effectiveness—including those for facilities, teachers, guidance services, and others—the level of expenditures for library and media services has the highest correlation with student achievement." The School Match database consisted of 15,892 public school systems in the U.S., 14,856 private schools, and accredited American schools throughout the world. This was a powerful statement; and when announced on national public radio, it created quite a stir.

U.S. Department of Education Rankings. So where do we in Massachusetts stand in terms of school libraries today? How does Massachusetts compare with other states in providing school libraries? In meeting national standards for staffing levels? In funding for school libraries? In providing materials to children? In circulating materials to children?

Where do we stand? We have nearly hit bottom! According to the most recent figures available from the U.S. Office of Education, of the fifty states, Massachusetts ranks near the bottom on several key characteristics in programming for school libraries:

- Massachusetts ranks only 49th in providing its public schools with school libraries; (See Appendix A.)
- Massachusetts ranks only 41st in teachers who agree that library materials are adequate to support objectives; (See Appendix B.)

- Massachusetts ranks only 38th in providing its public school students with state-certified library media specialists; (See Appendix C.)
- Massachusetts ranks only 47th in providing computers supervised by library media specialists; (See Appendix D.)
- Massachusetts ranks 50th (at the bottom) in mean circulation per pupil per school of all library materials. (See Appendix E.)

These dismal rankings show that our school libraries cry out for improvement. These discouraging rankings should shock us into acting to change this situation. To implement a new paradigm will take a lot of work by us all. Interdependence among all interested parties, not independence, is going to carry the day. The interested parties are the governor, legislators, education department, professional associations, school committee members, superintendents, principals, teachers, librarians, parents, and citizens—everyone.

We in Massachusetts can afford good school libraries. According to the *U.S. Statistical Abstract*, Massachusetts ranks 10th in terms of personal income, out of the fifty states. Parenthetically, the only state to rank below Massachusetts (that is, 50th) in providing for school libraries is West Virginia. But in terms of personal income, West Virginia ranks 37th out of the fifty states. On the other hand, according to figures from the Massachusetts Department of Education (DOE), the state of Massachusetts provides 38 percent as its share of the education budget, while the national average is 47 percent. Massachusetts again falls quite visibly far below the national average. Our collective wealth indicates that as a state we can do far better—much better. (See DOE WebPages http://www.doe.mass.edu/doedoscfacxts.96html.)

Education Reform. In 1993, the Education Reform Act was passed with the clear intention of raising standards in our schools. The overall objective was a comprehensive reform of public K-12 education that establishes education as the highest priority, both at the state and local levels.

In a press release from the Governor's Office dated June 2, 1992, announcing education reform, then Lieutenant Governor Argeo Paul Celluci said: "None of us wants to see our schools continue to deteriorate. Mediocrity is not an acceptable grade in Massachusetts." Despite this affirmation to reject mediocrity, education reform did not provide funding for school libraries. Why the deplorable condition of school libraries in Massachusetts at that time as compared to other states was not factored into education reform remains a mystery. Educational assessment and reform are far more complex than what the politicians would lead one to believe.

Education reform remains on the front burner. Raising education standards through education reform remains under full heat with the voters this year. People know that we can do far better. The curriculum frameworks, the blueprints matched to MCAS, still are not fully implemented. New certification regulations need to be voted by the state Board of Education. School libraries need to be adequately funded. And, yes, seven years into the process, we scarcely have any plans for improving school libraries. School libraries are, as you know, the bedrock on which education reform should be built.

The Simmons Study and Pending Legislation. In April 1999, Mary Eldringhoff and I undertook a statewide survey of school libraries (hereafter the Simmons Study) in order to provide baseline data for Massachusetts public school libraries. Some of the results were reported earlier in a Sunday *Boston Globe* article on January 30, 2000.

The Simmons Survey looked at the 1998 MCAS test scores* in relation to data on the survey instrument. The results show a strong, consistent, positive relationship between mean (average) MCAS scores and the presence of a school library program.

We mailed out 1,818 questionnaires—one to every public school (elementary, middle, junior high, high, charter, vocational technical, and regional) in the Commonwealth. This mailing included 1,241 elementary schools, 266 middle/junior high schools, and 311 high schools. We wanted everyone to participate. We received 519 survey instruments from the respondents. (See Table 1.) In November 1999, we gave a report at the MSLMA (Massachusetts School Library Media Association) conference held in Worcester. Today, we take the next step and explain to you in detail the relationships between school library program components and MCAS scores.

The U.S. Office rankings indicate that 87 percent of Massachusetts schools have libraries. Our data show 92 percent. (See Table 2.) There is a slight difference in

* For purposes of research presented in this document, the three MCAS scores for 1998 were added together—mathematics, science, and language arts—to form a combined score. This combined score was used in all statistical analyses.

these percentages. The point, however, is that until Massachusetts ranks with other states that have libraries in 100 percent of their schools--including Vermont, Oregon, Maryland, Georgia, and Arkansas--we cannot realistically talk about education reform, let alone educational quality.

General Survey Results. The Simmons Survey makes the vital connection between student achievement and school library programs in Massachusetts. Mean MCAS scores tend to be higher in schools with school library programs at all levels, as opposed to schools that do not have school library programs. Stated another way: School library programs are a valuable component of a child's education because they help a child achieve. Our research shows that the highest achieving students attend schools with good school libraries. Yet school libraries in Massachusetts, according to our survey data, spend an average of $12 per child for books—less than half the average coast of a hardcover book. We can do better. We must do better for our children.

Let us look more specifically at the findings. The findings from our study can be roughly summarized by educational level as follows:

All Levels—Elementary, Middle/Junior, High School Levels

1. At each grade level school library programs improve MCAS scores.
2. At each grade level students score higher on MCAS tests when there is a higher per pupil book count.
3. At each grade level student use of the library produces higher mean MCAS scores;
4. At each grade level hours open make a difference in MCAS scores.

Elementary and Middle/Junior High School Levels

5. At the elementary and middle/junior high school levels, students score higher on the MCAS tests when there is a library instruction program.
6. At the elementary and middle/junior high school levels, average MCAS scores are higher in schools with larger per pupil expenditures for school library materials.

Elementary and High School Levels

7. At the elementary and high school levels, students who are served by a full-time school librarian have higher MCAS scores than those in schools without a full-time librarian.
8. At the elementary and high school levels, library staff assistance (nonprofessional help) makes a positive difference in average MCAS scores. (See Table 7.)

Elementary Level

9. At the elementary level, students score higher on the MCAS tests when the library is aligned with the state curriculum frameworks. (This fact is especially true in schools that have a high percentage of free school lunches—the socioeconomic factor.)

High School Level

10. At the high school level, schools with automated collections have higher average MCAS scores.

These findings are in line with results in other studies, such as the Keith Lance studies of Colorado, Pennsylvania, and Alaska. Parenthetically, I would like to point out that in

item 2 above, it is “books per pupil” that is significant, not the number of books in a collection per se. The MSLMA standards are based on books per pupil, so this finding is especially important. This finding justifies the standard of books per pupil as a measure, not only for building library collections but also for evaluation purposes, including accreditation by the New England Association of Schools and Colleges.

A Digression: The Socioeconomic Factor. At this point, we need to digress for a moment to talk about the so-called socioeconomic factor. Evidence from the Simmons Survey indicates that equal educational opportunity comes more within reach for **all** children in the presence of a school library program that supports, extends, and enriches the educational process.

When we break the data out by percentage of free school lunches (the socioeconomic factor used in this study), the socioeconomic factor is powerfully potent. First, let’s acknowledge that there is a high degree of correlation between higher MCAS scores and the percentage of free school lunches. (Table 9 shows the correlation between MCAS scores and the percentage of free school lunch students by grade level.)

We can easily see that socioeconomic factors play a large role in MCAS test scores. As the percentage of free school lunches increases, mean MCAS scores decrease; that is, there is an inverse relationship between these two factors.

The issue here is not elitism or superiority or even community rivalry. Contrarily, the issue is that we all need to realize that there are socioeconomic differences in communities. These differences do not suggest, nor do I want to advance the idea in any way, that we formulate different standards for each community. We need to provide the

necessary resources for education so that each child can work to his or her maximum potential.

Elementary School Libraries. We can begin our elementary school library discussion with this well-known statement: "It is a terrible thing to waste the mind of a child."

The survey data reveal at this strategic moment, however, that elementary schools have the greatest need. Educational policy makers should not only see the clear vertical connection between the various levels of education but also act on it. There is a connection from womb to tomb. I do not exclude college and university in this connection. A child denied resources at the first-grade level cannot realistically be expected to perform well at the 10th-grade level. And when that lack is cumulative, it is especially troubling. And we can never forget that what happens in first grade influences what happens in 10th grade and beyond. The MCAS connection starts early.

At the elementary level, fifteen variables have been identified that are statistically significant when I examined mean MCAS scores. Roughly summarized, these variables can be grouped into six general categories. We, therefore, may conclude that elementary schools in Massachusetts need:

1. Hours of service, including before and after school;
2. Strong library collections--per pupil book count, magazines, and non-print items;
3. High library expenditures per pupil;
4. Library instruction and high student use;
5. Alignment of the library collection with the curriculum frameworks; and

6. Robust staffing, including a full-time librarian, non-professional assistance, and parent volunteers. (Table 10 gives the elementary results.)

These findings provide strong evidence of the value of an elementary school library program. Yet we also find that not all elementary schools have a library and that 37 percent do not employ a full-time librarian.

Equally important in this discussion is the fact that not only do elementary schools fall short of MSLMA standards for per pupil book count but they also fail to meet the MSLMA copyright (recency) standard. Given the evidence from our study, we strongly conclude: Schools that do not provide school libraries are presently damaging the children they exist to help.

Elementary School Libraries and the Socioeconomic Factor. Now let us consider the socioeconomic factor and elementary school libraries. I would be remiss if we did not discuss school libraries in schools with a high percentage of free school lunches. Children in these schools need books, libraries, and librarians as much as, if not more than do other children. The school library, when one exists, is for many disadvantaged children a major source of exposure to books, magazines, and the newer media--learning materials that stimulate their thinking, creativity, learning, reading, and enjoyment. There is a great joy in reading and in school libraries.

Our survey data suggest that children from a lower socioeconomic stratum who have a school library obtain a higher mean MCAS score than do similar children from schools that do not have such a program. For this study, the lower socioeconomic stratum is a school that offers more than 15 percent of its students a free school lunch. (Table 11 gives the 10 variables that are statistically significant at a *p*-value of .01 to .04 for mean

MCAS scores when controlling for the percentage of free school lunches--the socioeconomic factor.) It is more than a curiosity that the three library program variables—books per pupil, percent of the student body visiting the library per week, and a full-time librarian—are all statistically significant at a *p*-value of .00 or .01. There is a mean difference of 11 points on the MCAS score between books per pupil and full-time librarian and 12 points for the percent of the student body visiting the library per week.

Such evidence shows an unmistakable added advantage for lower socioeconomic children who attend schools with good school library programs. As Jonathan Kozol wrote in *School Library Journal* earlier this year, "Few forms of theft are quite as damaging to inner-city children as the denial of a well-endowed school library." While Mr. Kozol writes about the inner-city child, I point out that cultural deprivation and poverty exist beyond the inner-city school. Such conditions are found in more than a few cities and towns in the Commonwealth of Massachusetts, despite these affluent times.

The empirical evidence presented here shows that children from schools with a high free lunch program can learn effectively when we make a serious effort to provide them with school library resources and services. Inherent in this finding is that less fortunate children must be held to the same high standards as other children; they can learn when given an equal opportunity to do so. And when children become learners, they become self-actualizing and self-confident people. As educators and citizens, we cannot neglect the plight of economically disadvantaged children and their library and reading needs. This is a moral issue. Have we completely lost our moral compass when it comes to children and their basic needs?

Middle Schools. Let's now consider middle/junior high schools. The school library program variables that are statistically significant with MCAS test scores at the middle school exhibit similarities to the other levels, although there also are differences. The middle school program should consider the following aspects of library offerings:

1. Hours of service, including after school service;
2. Books per pupil;
3. Number of periodicals, including periodical databases;
4. Expenditure per pupil for materials;
5. Library instruction program;
6. Participation in the regional library system; and
7. Parent volunteers, including PTO donations. (Table 12 gives the middle/junior high school results.)

High Schools. At the high school level, the statistically significant mean MCAS test scores and school library variables are

1. After-school hours;
2. Books per pupil;
3. Participation in the regional library system;
4. Percent of the student body visiting the library;
5. Full-time librarian; and
6. Staff assistance. (Table 13 gives the high school results.)

Also important to consider is library automation, especially at the high school level. We have made progress in this area, but we need to do more since only 65 percent of the high schools are automated. This figure should be 100 percent. For any school that does

not have an automated system for circulation and collection management, this should be made a priority. While I do not wish to over dramatize the situation, I can add that there is a statistically significant difference in mean MCAS scores, with the highest mean going to high schools that have automated collections. (See Table 8.)

Other Schools. The regional high schools make up most of the schools in this category. We could not find any statistically significant relationships in this category. In a future study, we can look more thoroughly into this situation.

MSLMA Standards and Proposed Legislation. In 1996, MSLMA issued new standards titled "Standards for School Library Media Centers in the Commonwealth of Massachusetts." (Table 14 lists selected MSLMA standards.) Senate Bill 2148, filed in the last legislative session, was written to meet MSLMA standards.

As the data suggest, a critical situation exists here in Massachusetts. Why does this problem exist? What can we do about it? Funding at all levels for school libraries is a major problem. Most of the school libraries in the Commonwealth were either built or expanded with federal aid, ESEA-Title II (Elementary and Secondary Education Act), in the mid-1960s to the early 1970. When the federal government moved from categorical aid for school libraries under the ESEA-Title II to block grant funding in 1974, meaningful school library development ended in many Massachusetts school systems.

State Aid. What is the solution? State aid is the solution. Let me repeat that—state aid is the solution. State aid is a necessary ingredient for achieving equal opportunity for every child. But Massachusetts does **not** provide categorical state aid for school libraries. (See Appendix F.) The funding of adequate school libraries is, or should be, a joint responsibility of the Legislature and local school committees.

A bit of history is important here. Our forefathers determined in a deliberate way how education was to be managed. Education, one area not provided for in the U.S. Constitution, automatically devolves to the states. Therefore, education is a state responsibility, with full legal accountability resting with each state legislature. Although the federal government makes substantial sums of money available for education, the federal government is **not** controlling in terms of governance.

Realizing the fragile nature of education at the local level, state legislatures provided special protection for schools through the instrument of a local school board (or school committee, as they are known here in New England.) This legal convention ideally put the local schools in the hands of public-spirited individuals who would protect the local public schools from the messy side of day-to-day politics.

It is well-settled law in some jurisdictions that school boards are instruments of the state legislature, fulfilling the educational obligations of the legislature to its citizens. Under this scheme, it is the legislature's responsibility to see that public education is properly funded, including appropriate funding for school libraries.

Accountability for the rather bleak U.S. Office rankings of school libraries in Massachusetts rests not only with the local school committees but also with the state legislature, including its agent--the State Board of Education, which has the obligation to establish and maintain standards for quality education. The State Board of Education needs to reassess its role in allocating and providing leadership for school libraries. The publication *State Department of Education Responsibilities for School Libraries*[1] defines this role for state departments:

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[1] U.S., Department of Health, Education, and Welfare, Office of Education, *State Department of Education Responsibilities for School Libraries,* 1960, p. 1.

> Certain legal responsibilities, such as establishing regulations and standards, promoting research in school programs, providing consultative services, accrediting institutions, and making reports, devolve on State departments of education. School libraries are generally a constituent part of these responsibilities.

The significance of this quote speaks to the deplorable condition of school libraries today. We need the state board to develop policies and work with the legislature to change the situation for the Massachusetts school children. I also point out that the same Office of Education document states: "Increased State aid and higher standards for school libraries are considered essential for school library development."[2]

Massachusetts once stood out in front on school libraries, at least at the state level. At the conclusion of World War II, the legislature provided for a state level supervisory position for school libraries in the DOE. We were one of the first states to move in this direction. It is now time to regain our leadership role in school libraries.

The legislature now needs to review this situation and then take immediate and appropriate action in the following two areas:

1. To fund a state school library supervisory office in the DOE that will carry out responsibilities for that office as espoused in the U.S. Office of Education document cited above; and
2. To provide relief to local school committees in the form of direct categorical aid for school libraries.

The development and revitalization of school libraries begins, as a matter of course, with the legislature, but the advisory educational leadership of DOE is also needed. The fact that Massachusetts ranks 50th out of the fifty states in circulating materials to

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[2] Ibid., p 31.

children is an intolerable condition in a state that prides itself in working towards educational excellence and in a state with state-mandated passing of MCAS tests.

As our research shows, the successful implementation of the curriculum frameworks depends immeasurably on a strong school library program. School libraries are the foundation for resource-based teaching. Achieving good MCAS scores depends precisely on the good working combination of successful administrative leadership, of team building for the implementation of the curriculum frameworks, of excellence in teaching, and of strong school library resources in every school.

Here, I especially want to point out the urgency of the model for elementary school libraries, since this level at this time is in the greatest need, both in suburban and urban school systems in the Commonwealth. It is a terrible thing to waste the mind of a child. And children learn better when their schools have libraries—libraries that are well-stocked and well-staffed. We cannot rest, nor should we, until every school and every school child in the Commonwealth has a school library, a full-time state certified school librarian, and a book collection that meets MSLMA standards. We can afford no less for our children.

Working together, we will accomplish much; working divisively we will accomplish nothing. The future belongs to those of us who can team and build for the children of Massachusetts, the group for which we today—here and now—are advocates. The advocacy is for student achievement. School libraries significantly increase student achievement.

TABLES

Table 1. Response Rate for Questionnaires

	Number Mailed	Number Received	Percent Received
Elementary	1,241	289	23
Middle/Junior	266	89	33
High School	311	108	35
All	1,818	519	29

Table 2. Number and Percentage of Massachusetts Schools with a School Library by Grade Level

	Library		No Library		All	
Grade Level	Number	Percent	Number	Percent	Number	Percent
Elementary	255	88	34	12	289	100
Middle/Junior	87	98	2	2	89	100
High	108	100	0	0	108	100
Other	28	85	5	15	33	100
All	478	92	41	8	519	100

Table 3. Elementary Level. Regression Analysis of Free Lunch Variable and School Library Program Variables

Predictors	R-Sq	Coefficient	P-Value
Free Lunch	63.3%	- 0.64895	0.00
Free Lunch	70.6%	-0.63658	0.00
Books per Pupil		0.3262	0.00
Full-Time Librarian		5.854	0.00
Automation		3.1103	0.00

Table 4. Middle/Junior High Level. Regression Analysis of Free Lunch Variable and School Library Program Variables

Predictors	R-Sq	Coefficient	P-Value
Free Lunch	75.6%	-0.93111	0.00
Free Lunch	80.1%	-0.95800	0.00
Books per Pupil		0.3305	0.05
Full-Time Librarian		4.727	0.09

Table 5. High School Level. Regression Analysis of Free Lunch Variable and School Library Program Variables

Predictors	R-Sq	Coefficient	P-Value
Free Lunch	58.7%	-1.2337	0.00
Free Lunch	60.2%	-1.3732	0.00
Books per Pupil		0.2973	0.03
Full-Time Librarian		19.428	0.02
Hours of Paid Staff Support		0.15062	0.05

Table 6. MCAS Scores and Books per Pupil

Books per Pupil	Low % of School Lunch			High % of School Lunch			All		
	Mean MCAS	*t**	P-Value	Mean MCAS	*t*	P-Value	Mean MCAS	*t*	P-Value
Elementary									
Low**	713			690			699		
High	722	-3.08	0.00	700	-2.38	0.01	714	-4.66	0.00
Middle									
Low	708			670			688		
High	717	-1.99	0.03	680	-1.47	0.07	701	-2.34	0.01
High School									
Low	695			661			673		
High	710	-3.46	0.00	673	-1.59	0.06	698	-4.01	0.00

*In tables 6, 7, 10-13, the *t* values are interpreted under the null hypothesis as one-tailed tests of significance. One-tailed tests are used in interpreting these data since both empirical evidence and theoretical rationale justify such use.

**For Low and High in each of the tables employing the t-test, the distribution for each variable was divided as closely as possible into two groups. (One cannot have more than two groups to perform the t-test.)

Table 7. MCAS Scores and Library Staff Assistance

	ALL		
	Mean MCAS	*T*	P-Value
Elementary			
Low	705		
High	712	-2.38	0.01
Middle			
Low	690		
High	694	0.73	0.77
High School			
Low	680		
High	694	-2.55	0.01

Table 8. High School Level. A Simple Analysis of Variance of Automation and Mean MCAS Scores

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	*F*	P-Value
Between groups	3	12367.4	4122.5	5.55	0.00
Within groups	94	69870.0	743.3		
Total	97	82237.4			

The analysis of variance statistical technique allows one to look at the difference between the means of two or more groups; in this instance, the various mean MCAS scores in relation to automated library collections.

Table 9. Free School Lunch and MCAS Test Scores Correlated by Grade Level

	Correlation*	P-Value
Elementary		
4^{th} grade	-0.796	0.000
8^{th} grade	-0.884	0.000
Middle	-0.868	0.000
High School	-0.55	0.000
Other Schools		
8^{th} grade	-0.574	0.002
10^{th} grade	-0.533	0.005

*The minus sign with each correlation coefficient indicates that there is an inverse relationship between the two variables; for example, as the percentage of free school lunch goes up the mean MCAS scores go down.

Table 10. Elementary Level. Mean MCAS Scores and Statistically Significant School Library Variables

Variable	Number	Standard Deviation	Mean MCAS Score	*t*	P-Value
Hours Open					
Low	96	21.9	703.1		
High	100	19.0	710.9	-2.67	0.00
Before School					
No	119	21.5	704.6		
Yes	75	18.9	710.5	-1.93	0.03
After School					
No	126	20.0	704.7		
Yes	67	21.5	711.1	-2.06	0.02
Books per Pupil					
Low	77	21.9	699.4		
High	96	18.3	713.9	-4.66	0.00
Periodicals (Hard Copy)					
Low	75	22.9	701.1		
High	87	18.2	711.0	-3.06	0.00
Newer Media					
Low	67	24.0	701.9		
High	74	17.8	711.3	-2.62	0.00
Expenditure per Pupil					
Low	66	23.8	705.4		
High	79	16.8	711.6	-1.86	0.03
Library Instruction					
No	30	19.7	698.3		
Yes	155	20.3	709.5	-2.78	0.00
Student Visits per Week					
Low	93	23.0	704.8		
High	89	17.1	709.7	-1.63	0.05
Percent of Student Body Visiting per Week					
Low	62	24.7	700.1		
High	126	17.3	710.9	-3.08	0.00
Alignment with State Curriculum Frameworks					
No	43	21.5	700.2		
Yes	57	20.6	709.1	-2.09	0.02
Full-Time Librarian					
No	119	20.6	704.8		
Yes	69	20.3	711.6	-2.21	0.02
Staff Assistance					
Low	79	24.7	704.5		
High	81	14.8	712.2	-2.38	0.00
Parent Volunteers					
No	58	22.4	696.7		
Yes	135	18.4	711.8	-4.54	0.00
Technical Support					
No	88	19.5	704.2		
Yes	101	20.9	710.3	-2.05	0.02

Table 11. Elementary Level. Mean MCAS Scores and Statistically Significant School Library Variables by High Percentage of Free School Lunches

Variable	Number	Standard Deviation	Mean MCAS Score	*t*	P-Value
Hours Open					
Low	49	21.1	691.5		
High	45	18.4	698.6	-1.74	0.04
Books per Pupil					
Low	44	20.8	689.8		
High	36	19.0	700.4	-2.38	0.01
New Media					
Low	39	20.7	690.1		
High	30	17.7	700.0	-2.14	0.02
Expenditure per Pupil	35				
Low	29	22.3	691.5		
High		17.9	702.7	-2.18	0.02
Student Visits per Week					
Low	51	20.0	691.5		
High	38	19.4	700.5	-2.14	0.02
% of Student Body Visiting per Week					
Low	41	18.8	688.1		
High	49	19.6	700.1	-2.97	0.00
Alignment with State Curriculum Frameworks					
No	23	18.7	686.3		
Yes	26	22.2	697.3	-1.89	0.03
Full-Time Librarian					
No	56	17.8	690.0		
Yes	33	21.2	701.0	-2.52	0.01
Staff Assistance					
No	46	23.1	692.1		
Yes	29	14.5	701.4	-2.14	0.02
Parent Volunteers					
No	41	19.2	689.2		
Yes	45	19.9	699.7	-2.56	0.00

Table 12. Middle/Junior High Level. Mean MCAS Scores and Statistically Significant School Library Variables

Variable	Number	Standard Deviation	Mean MCAS Score	*t*	P-Value
Hours Open					
Low	47	25.1	688.5		
High	34	23.2	703.1	-2.68	0.00
Books per Pupil					
Low	39	24.3	687.0		
High	40	25.3	701.0	-2.34	0.01
Periodicals (Hard Copy)					
Low	26	4.7	687.1		
High	54	25.1	698.1	-1.85	0.03
Expenditures per Pupil					
Low	29	24.7	687.5		
High	28	22.0	702.1	-2.31	0.01
Library Instruction					
No	12	25.9	682.9		
Yes	64	24.1	698	-1.97	0.03
Regional System					
No	21	24.3	687		
Yes	57	24.8	698.7	-1.85	0.03
Parent Volunteers					
No	45	24.1	686.9		
Yes	35	22.7	705.5	-3.52	0.00

Table 13. High School Level. Mean MCAS Scores and Statistically Significant School Library Variables

Variable	Number	Standard Deviation	Mean MCAS Score	*t*	P-Value
After School Hours					
No	9	23.4	660.3		
Yes	91	27.5	688.2	-2.64	0.00
Books per Pupil					
Low	48	25.2	672.8		
High	49	28.5	694.7	-4.00	0.00
Regional System					
No	16	26.2	672.5		
Yes	82	28.5	686.7	-1.85	0.03
% Student Body Visiting Library Weekly					
Low	37	31.4	676.4		
High	44	26.3	687.1	-1.67	0.05
Full-Time Librarian					
No	7	24.9	665.4		
Yes	91	29.0	685.4	-1.77	0.04
Staff Assistance (Hours)					
Low	45	27.4	679.7		
High	41	24.9	694.1	-2.54	0.00

Table 14. MSLMA Standards for Library Collection for All Levels

Size of School	Library Books*
<400 students	20 print titles per student
401-800 students	22 print titles per student
>801 students	24 print titles per student
	Periodicals
<400 students	Access to 50 full-text titles
401-800 students	Access to 75 full-text titles
>801 students	Access to 100 full-text titles
Non-Print Resources	Total number equal one (1) percent of total collection

*Seventy percent (70%) of the entire print collection will have a copyright date within ten (10) years of the current year.

15. Elementary Schools. Selected Library Services in Massachusetts by MSLMA Standards

	<400 Students N*=142 Schools			401-800 Students N=129 Schools			>801 Students N=18 Schools		
	Median			Median			Median		
Books per Pupil	18.4			16.3			11.6		
Magazines per School	4			15			13		
Electronic Periodical Database	0			0			1		
% of Non-Fiction Collection Less than 10 Years Old	40			50			60		
% of Fiction Collection Less than 10 Years Old	40			50			41		
		N	%		N	%		N	%
Full-Time Librarian									
Yes		21	19		59	49		12	67
No		90	81		62	51		6	33
Library									
Yes		114	80		123	95		18	100
No		28	20		6	5		0	

*N = Number

Table 16. Middle/Junior Schools. Selected Library Services in Massachusetts by MSLMA Standards

	<400 Students N*=12 Schools			401-800 Students N=53 Schools			>801 Students N=24 Schools		
	Median			Median			Median		
Books per Pupil	19.7			14.1			10.8		
Magazines per School	17.5			24.5			19		
Electronic Periodical Database	1			1			1		
% of Non-Fiction Collection Less than 10 Years Old	27.5			27.5			40		
% of Fiction Collection Less than 10 Years Old	50			30			32.5		
		N	%		N	%		N	%
Full-Time Librarian									
Yes		6	55		36	71		19	83
No		5	45		15	29		4	17
Library									
Yes		11	92		53	100		24	100
No		1	8		0			0	

*N = Number

Table 17. High Schools. Selected Library Services in Massachusetts by MSLMA Standards

	<400 Students N*=6 Schools			401-800 Students N=40 Schools			>801 Students N=62 Schools		
	Median			Median			Median		
Books per Pupil	17.8			19.3			14.6		
Magazines per School	60			48			50		
Electronic Periodical Database	1			1			1		
% of Non-Fiction Collection Less than 10 Years Old	90			25			25		
% of Fiction Collection Less than 10 Years Old	80			20			21.5		
		N	%		N	%		N	%
Full-Time Librarian									
Yes		3	60		38	97		57	93
No		2	40		1	3		4	7
Library									
Yes		5	83		40	100		62	100
No		1	17		0			0	

*N = Number

Table 18. Other Schools. Selected Library Services in Massachusetts by MSLMA Standards

	<400 Students N*=7 Schools			401-800 Students N=12 Schools			>801 Students N=13 Schools		
	Median			Median			Median		
Books per Pupil	22.8			20			11.2		
Magazines per School	30			41			60		
Electronic Periodical Database	0			1			1		
% of Non-fiction Collection Less than 10 Years Old	61.5			31			30		
% of Fiction Collection Less than 10 Years Old	66			40			40		
		N	%		N	%		N	%
Full-time Librarian									
Yes		1	33		12	100		13	100
No		2	67		0			0	
Library									
Yes		3	43		12	100		13	100
No		4	57		0			0	

*N = Number