

Spring 2011 Status Report

A Study of More Efficient Maine Schools:

An Examination of Strategies and Practices in Selected Maine Schools

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Overview

In 2010-11 the Maine Legislature requested that the Maine Education Policy Research Institute (MEPRI) at the University of Southern Maine (USM) conduct a study of public schools that have been identified as being both higher performing and efficient. Over the past two years, MEPRI has developed a set of metrics for identifying schools whose students are beating the odds by performing significantly better on state assessments than is predicted from student and community characteristics, and schools that are achieving higher returns on their spending. That is to say, they are **more efficient schools**. The goal of the study is to identify the strategies and practices that these schools are using to support all learners, and to disseminate this information to all Maine schools and communities statewide.

The study is being completed in four phases:

1. Develop profiles of Maine schools in terms of academic performance and return on spending.
2. Identify Maine schools that qualify as producing both higher performance and higher returns on spending; thereby acquiring the status as a more efficient school.
3. Study a sample of the more efficient Maine schools at different grade levels.
4. Disseminate the school profiles, and distinguishing strategies and practices found in Maine's more efficient schools.

The study is scheduled to be completed in summer 2011. This is a status report on the various phases of the study, and provides some preliminary findings to date.

Phase I: Developing Maine School Efficiency Profiles

The first phase of the study entailed developing profiles of Maine schools in terms of academic performance and spending, and to use these two factors in establishing School Efficiency Profiles. The goal of this phase of the study was to provide Maine schools and communities with a quick overview of their students' academic performance on the annual statewide assessment, and schools' return on spending.

For the purpose of developing the profiles, school efficiency has been defined by a set of six criteria, four based on student academic performance (and a fifth one for high schools), and two based on the return on spending. In order to meet a criterion, the school's score must be greater than a comparison score. All criteria must be met in order for a school to be identified as being more efficient.

The efficiency data used in developing these initial profiles is from two years: 2007-2008 and 2008-2009. Once the efficiency profile system is validated through a series of case studies, profiles using more updated information will need to be developed.

The criteria used in the initial profiles were:

1. Two-year schoolwide composite Scale Scores on Maine's state assessments, compared to statewide average composite scale scores.
2. Two-year schoolwide average percent of students Meeting or Exceeding the state proficiency standard, compared to the state average.
3. Two-year schoolwide average percent of students at least Partially meeting or better than the state proficiency standards, compared to state average.
4. Two-year schoolwide composite Scale Scores on Maine state assessment, compared to a school's predicted composite scale score.
5. For high schools, the school's graduation rate compared to the state average.

Two additional criteria were used to classify schools in terms of their spending; more accurately, a school's return on spending. These criteria were:

6. A school's return on spending ratio compared to the state ratio, where a Return on Spending Ratio was defined as the percent of students in a school who meet or exceed state proficiency standards, divided by the school's per pupil operating expenditure.
7. A school's return on spending ratio compared to a school's expected ratio, where the expected ratio takes into account school and community characteristics.

Using these 6 (or 7 in the case of high schools) criteria, school efficiency profiles were developed for 524 of the 664 Maine public K-12 schools. Profiles could not be developed for 140 Maine schools, primarily for reasons of missing data, or because the schools did not include

4th, 8th, or 11th grades, grades tested in 2007-2009 with the Maine Education Assessments (MEAs) or the Maine High School Assessment (MHSA).

A preliminary listing of School Efficiency Profiles of the 524 Maine public K-12 schools is available at: http://www.usm.maine.edu/cepare/VI/HPE_BETA_V_I.html . An example of a profile is as follows:

Anytown Elementary School Efficiency Profile

Academic Performance and Return on Spending Criteria			Met Criterion?	
			Yes	No
Efficiency	Performance	P1. Average school score on statewide assessment compared to state comparison score.	✓	
		P2. Average school score on statewide assessment compared to expected score.	✓	
		P3. School percent of students that Meet or Exceed standards on statewide assessment compared to state percentage.*		✓
		P4. School percent of students that Partially Meet, Meet, or Exceed standards on statewide assessment compared to state percentage.*	✓	
	Return	R1. School's return on spending ratio compared to state ratio.		✓
		R2. School's return on spending ratio compared to expected ratio.	✓	

*This study uses the 2008-2009 Maine Department of Education standards-based proficiency levels: "Does Not Meet," "Partially Meets," "Meets," and "Exceeds."

In this case, the fictitious elementary school met three of the performance criterion and one of the return on spending criterion.

To be considered More Efficient, a large majority of students in a school should be performing well: better than the state average and better than expected considering prior performance. By the same token, school spending per pupil should yield high returns on pending: better than the state average and better than may be expected given prior student performance and community characteristics. In essence, a school must meet all 6 or 7 criterion.

Phase II: Identifying More Efficient Maine Public Schools

The second phase of the study involved identifying four types of Maine public schools that met all 6 criterion (7 in the case of high schools) described above. The four types of schools represent different configurations and levels. These four are K-8 schools, grade schools (grades K-5), middle schools (grades 6-8), and high schools (grade 9-12).

Table 1 reports the number of Maine public schools that are higher performing (meet academic criterion) and that met both the academic performance criterion and return on spending criterion, based on the 2007-2009 data. As indicated in the table, approximately 23% of the schools evaluated were classified as Higher Performing, and 17% of the total number of schools evaluated were classified as More Efficient (i.e., higher academic performance and higher return on spending).

Table 1:

School Level	Schools Evaluated	Higher Performing	More Efficient (ME)
K-8	96	16 (16.8%)	10 (10.5%)
Grade Schools (K-5)	228	67 (27.8%)	54 (23.6%)
Middle Schools (6-8)	93	22 (23.7%)	17 (17.9%)
High Schools (9-12)	107	14 (13.3%)	9 (8.6%)
Total	524	119 (22.7%)	90 (17.2%)

Table 2 provides a profile of the 119 higher performing schools, and the 90 more efficient schools, by the nine superintendent regions in Maine. As may be seen from the table, there are

Table 2: Higher Performing and More Efficient Maine Public Schools by Superintendent Region

	K-8 School		Grade School (K-5)		Middle School (6-8)		High School (9-12)	
	HP	HPE	HP	HPE	HP	HPE	HP	HPE
Aroostook	1	1	3	3			2	
Penquis	2		13	12	8	7	2	1
Washington	4	4						
Hancock	2		1	1	1	1		
Mid-coast	4	2	9	4	2		1	
Western Maine	2	2	4	4	1	1		
Cumberland	1	1	16	11	8	7	7	6
Kennebec			9	8				
York			12	11	2	1	2	1
Total	16	10	67	54	22	17	14	9

higher performing and more efficient schools in all nine regions. Table 3 on the next page provides some basic descriptive information about the sets of schools.

**Table 3: Descriptive Statistics Higher Performing (HP) and More Efficient (ME)
Schools by Type**

Maine Public K-8			
Variable	HP = 16 Average (Range)	ME = 10 Average (Range)	State = 96 Average (Range)
Average Enrollment	180 (41 – 422)	166 (41 – 383)	173 (20-497)
Free and Reduced Lunch	40.5% (24.1% - 67.0%)	47.6% (25.4% - 67.0%)	46.9% (11.5% - 77.8%)
Per Pupil Operating Expenditure	\$8,696 (\$6,777 - \$12,411)	\$7,584 (\$6,777 - \$8,674)	\$8,607 (\$5,508-\$18,354)
Maine Public Elementary Schools (Grades K-5)			
Variable	HP = 67 Average (Range)	ME = 54 Average (Range)	State = 228 Average (Range)
Average Enrollment	234 (13 – 679)	253 (42 – 673)	247 (13 – 842)
Free and Reduced Lunch	34.8% (2.9% - 68.9%)	36.2% (2.9% - 68.9%)	46.7% (2.9% - 97.6%)
Per Pupil Operating Expenditure	\$8,025 (\$4,966 - \$20,024)	\$7,123 (\$4,966 - \$10,489)	\$7,347 (\$3,770 - \$20,024)
Maine Public Middle Schools (Grades 6-8)			
Variable	HP = 22 Average (Range)	ME = 17 Average (Range)	State = 93 Average (Range)
Average Enrollment	427 (142 – 817)	468 (267 – 817)	376 (75 – 906)
Free and Reduced Lunch	24.8% (3.5% - 56.2%)	24.3% (3.5% - 56.2%)	39.8% (3.5% - 71.0%)
Per Pupil Expenditure	\$8,120 (\$6,392 - \$10,864)	\$7,500 (\$6,392 - \$8,689)	\$7,973 (\$3,630 - \$10,864)
Maine Public High Schools (Grades 9-12)			
Variable	HP = 14 Average (Range)	ME = 9 Average (Range)	State = 107 Average (Range)
Average Enrollment	582 (92 – 1044)	679 (262 – 1053)	524 (84 – 1,374)
Free and Reduced Lunch	20.0% (3.3% - 49.2%)	15.2% (3.3% - 44.8%)	43.8% (3.3% - 77.2%)
Graduation Rate	93.0% (90.0% - 98.0%)	93.3% (90.0% - 98.0%)	83.3% (66.0% - 98.0%)
Per Pupil Expenditure	\$9,726 (\$6,908 - \$16,324)	\$8,588 (\$6,908 - \$10,351)	\$8,754 (\$6,350 - \$16,324)

Additional descriptive characteristics of the schools appear in Tables 4-7. In this case, the data is reported in three categories: (1) all schools at a grade configuration level; (2) more efficient schools; and (3) all schools excluding the more efficient ones.

Table 4: K-8 Schools Abridged Efficiency Categories

		Total school enrollment 0809	FR_Lunch% 0809	Special Ed % 0809	Teacher student ratio 0809	Teacher % Masters or Higher 0809	Years Teaching in SAU 0809
Other	N	86	86	86	86	86	86
	Average	174	46.8	15.7	11.6	30	12.8
	Range	(20 - 497)	(11.5 - 77.8)	(0.0 - 31.7)	(5.9 - 18.9)	(0 - 88)	(3.8 - 26.7)
More Efficient	N	10	10	10	10	10	10
	Average	166	47.6	15.3	12.5	31	13.3
	Range	(41 - 383)	(25.4 - 67)	(9.2 - 22)	(10.7 - 13.7)	(0 - 62)	(8.3 - 16.1)
All Schools	N	96	96	96	96	96	96
	Average	173	46.9	15.7	11.7	30	12.9
	Range	(20 - 497)	(11.5 - 77.8)	(0.0 - 31.7)	(5.9 - 18.9)	(0 - 88)	(3.8 - 26.7)

Table 5: K-5 Schools Abridged Efficiency Categories

		Total school enrollment 0809	FR_Lunch % 0809	Special Ed % 0809	Teacher student ratio 0809	Teacher % Masters or Higher 0809	Years Teaching in SAU 0809
Other	N	174	174	174	174	174	174
	Average	245	50	16	13.8	34	13.3
	Range	(13 - 842)	(7.7 - 97.6)	(0.0 - 29.8)	(5.9 - 22.1)	(0 - 83)	(2.2 - 23.1)
More Efficient	N	54	54	54	54	54	54
	Average	253	36.2	14.1	14.6	40%	13.3
	Range	(42 - 673)	(2.9 - 68.9)	(0.0 - 22.9)	(8.6 - 24.1)	(0 - 81)	(5.9 - 21.7)
All Schools	N	228	228	228	228	228	228
	Average	247	46.7	15.5	14	36	13.3
	Range	(13 - 842)	(2.9 - 97.6)	(0 - 29.8)	(5.9 - 24.1)	(0 - 83)	(2.2 - 23.1)

Table 6: Middle Schools Abridged Efficiency Categories

		Total school enrollment 0809	FR_Lunch% 0809	Special Ed % 0809	Teacher student ratio 0809	Teacher % Masters or Higher 0809	Years Teaching in SAU 0809
Other	N	76	76	76	76	76	76
	Average	352	43.3	17.3	13.3	36	12.6
	Range	(74 - 906)	(9.7 - 71)	(8.1 - 27.9)	(9.9 - 18.3)	(9 - 70)	(7.3 - 19.7)
More Efficient	N	17	17	17	17	17	17
	Average	468	24.3	14.8	14.4	44	12.5
	Range	(268 - 807)	(3.5 - 56.2)	(9.6 - 21.5)	(12.6 - 18.1)	(22 - 74)	(9.1 - 17.9)
All Schools	N	93	93	93	93	93	93
	Average	373	39.8	16.8	13.5	37	12.6
	Range	(74 - 906)	(3.5 - 71)	(8.1 - 27.9)	(9.9 - 18.3)	(9 - 74)	(7.3 - 19.7)

Table 7: High Schools Abridged Efficiency Categories

		Total school enrollment 0809	FR_Lunch% 0809	Special Ed % 0809	Teacher student ratio 0809	Teacher % Masters or Higher 0809	Years Teaching in SAU 0809
Other	N	98	98	98	98	98	98
	Average	509	46.9	16.6	13.8	40	11.4
	Range	(84 - 1374)	(9.1 - 77.2)	(9.1 - 31.7)	(7.6 - 17.6)	(0 - 73)	(3.3 - 18.3)
More Efficient	N	9	9.0	9.0	9.0	9	9.0
	Average	679	15.2	12.1	14.4	60	10.7
	Range	(262 - 1053)	(3.3 - 44.8)	(8.6 - 16.9)	(12.9 - 17.0)	(42 - 75)	(8.5 - 12.9)
All Schools	N	107	107	107	107	107	107
	Average	524	44.2	16.2	13.9	40	11.3
	Range	(84 - 1374)	(3.3 - 77.2)	(8.6 - 31.7)	(7.6 - 17.6)	(0 - 75)	(3.3 - 18.3)

Phase III: Study of a Sample of Schools

Phase III of the multi-phased study was designed to examine a sample of the more efficient schools and typical schools, in order to test the efficiency criteria, and to identify distinguishing strategies and practices to be found in these more efficient schools. Table 8 provides a breakdown of the 25 schools examined in this phase of the larger study.

The purpose for studying these two groups of schools is to gain insight into the strategies and practices that enable some schools to excel. To do so, researchers are gathering information

Table 8:

School Level	Type of School	
	More-Efficient	Typical
K-8 Schools	3	2
Elementary School	5	2
Middle School	3	3
High Schools	5	2
Total	16	9

to describe each group of schools in terms of eight key characteristics: (1) standards and expectations; (2) curricula; (3) assessment; (4) professional development; (5) community participation; (6) school culture; (7) leadership; and (8) use of resources.

Site Visits

A site visit is being conducted in each of the 25 schools. A two to three-member team of experienced educators are conducting these 2-day site visits. During their site visits team members interview and observe teachers, students, staff, parents, and administration. The team is also conducting analyses of relevant documents (e.g., curriculum, course schedules, assessments, student projects, etc.). Before the site visit, researchers interview the building principal to set the context and develop a visit schedule that works best for the school. Research staff prepare a profile, gathered from state sources, of each school's demographic, staffing, student performance and financial data. After each site visit, the research team is compiling a school-level report describing significant strategies, characteristics and practices of the school, and this report will be shared with the individual school and district.

After completing the site visits, reviews of documents, and preparing the site reports, the teams are preparing a cross-case analysis. This analysis will be reported and disseminated, and form the basis for the next stage in this applied research study.

Phase IV: Distinguishing Characteristics of More Efficient Schools

The research teams having completed all the site visits and currently are working on developing the cross-case analysis. Some of the preliminary findings, subject to further analysis

and review, are listed below. It is noteworthy that the most distinguishing characteristics of more efficient schools are not of the specific program type, but rather characteristics related to the school's culture, both academic and social, and approach to helping students learn. Given this overarching fundamental characteristic, other characteristics include:

1. Standards and Expectations

- ✓ High standards are communicated, understood, and expected for all students; and all members of the learning community are aware of these academic and social targets/

2. Curricula

- ✓ The curriculum is focused and consistent; students are highly engaged in rigorous and relevant activities; and a variety of interventions are used to ensure student progress.

3. Assessment

- ✓ Curriculum development, instruction and intervention are informed by student performance; appropriate assessment tools are selected and/or developed, and; data is shared with students, parents and community.

4. Professional Development

- ✓ Informative, focused professional learning is supported at all levels, from the classroom to the district level.

5. Community Participation

- ✓ Stakeholder groups including community members, the school committee, and district leadership, are informed supporters of on-going instructional improvement and learning.

6. School Culture

- ✓ Policies and practices of the school provide equitable access to learning that provides opportunities to meet high standards, and the school provides a safe, welcoming, and healthy environment in which all students are known well.

7. Leadership

- ✓ The decision-making process is clear and focused on enhancing the learning of all students; members of the school community work collectively, and; conflicts are handled skillfully and respectfully.

8. Use of Resources

- ✓ Decision-making at all levels is driven by the goal of supporting the achievement of high standards by all students, and; focused strategies promote the school's ongoing program development and improvement goals connected to student learning..