MEPRI 2012 Workplan Product Deliverables: B.1 Product

Identify Improving Maine High Schools

Rationale Behind Criteria for Identifying Improving Maine High Schools

There are five criteria for identifying improving schools. These criteria are listed in Figure 1. on the next page. The first criterion for identifying improving schools compares the mean score on the state assessments to the statewide mean:

1. The average standardized difference between the cumulative scale score on the state exams (MEA, NECAP, or MHSA) and the state average is higher in the most recent two years than in the prior two years.

This is a good starting point, because the mean scale score is an overall measure of student academic achievement and is affected by the score of every student. The average scale score is called a *status* criterion, because it depends on the status of students' knowledge and abilities at the time of taking the test rather than how much they have learned since starting at the school. Other status measures, such as the median, only reflect the scores of the middle scoring students and are unaffected by the lower or higher scoring students. Measures such as the proportion of students meeting state standards are not sensitive to how far over or under the standards students are. A student barely meeting the standards is counted the same as one acing the test, and a student failing miserably is counted the same as one almost meeting the standards. The first criterion in this set avoids both of those shortfalls. However good it is as a starting point, it would not be a good stopping point, because it does not account for the fact that some schools have students that are better prepared to succeed when they first enroll in the school. For example, two high schools may produce the same mean SAT score with very different classes. If so, the high school whose entering freshmen were better prepared did not have to teach as much to achieve the same achievement levels as the school whose students are not as well prepared.

Accordingly, the following criterion is added:

2. The average standardized difference between the cumulative scale score on the state exams and the score that would be predicted based on pupil characteristics and student scores in previous grades is higher in the most recent two years than in the prior two years.

This criterion assures that schools identified as improving have improved in teaching their students well, relative to how prepared they were before entering the school. This is called a *value-added* criterion,

because it measures what the school has added to the students' knowledge and abilities. Having both the first and second criteria are better than having either one alone. However, both are based on means, and

Figure 1

Criteria for Identifying Improving Maine Schools

For a school to be identified as an Improving Maine school, the school must meet five criteria if it is a high school, or four criteria if it is not a high school.

Improving Schools. A school is designated as improving if it meets *the first four* of the following criteria in the evaluated grades, grades 4 or 8, and *all five criteria* for grade 11:

1. The average standardized difference between the cumulative scale score on the state exams (MEA, NECAP, or MHSA) and the state average is higher in the most recent two years than in the prior two years,
2. The average standardized difference between the cumulative scale score on the state exams and the score that would be predicted based on pupil characteristics and student scores in previous grades, is higher in the most recent two years than in the prior two years,[1]
3. The average standardized difference between the percentage of pupils at or above the *Meets* proficiency level and the state average is higher in the most recent two years than in the prior two years, and
4. The average standardized difference between the percentage of pupils at or above the *Partially Meets* proficiency level and the state average is higher in the most recent two years than in the prior two years.
5. For high schools, the average standardized difference between the four-year graduation rate and the state average is higher in the most recent two years than in the prior two years.

[1] In grade 4, the predicted score is based only on pupil characteristics, not student scores in previous grades.

an improving mean might be the result of large improvements in high scores combined with smaller decreases in lower scores, in effect, leaving lower performing students behind. Such a school should not be considered improving.

In view of that, a third and fourth criterion were added.

3. The average standardized difference between the percentage of pupils at or above the *Meets* proficiency level and the state average is higher in the most recent two years than in the prior two years, and
4. The average standardized difference between the percentage of pupils at or above the *Partially Meets* proficiency level and the state average is higher in the most recent two years than in the prior two years.

Including these criteria assures that an increasing number of students in schools identified as improving are meeting the state standards and that fewer students are not at least partially meeting the standards. In practice, most schools that meet the first criterion, that is, have an improving mean score, also have increasing percentages of students meeting proficiency standards. So adding these criteria should not be expected to rule out many schools. But if being identified as improving becomes a goal, having these criteria could affect the strategies schools use to achieve that goal. Common wisdom says that the surest, quickest way to improve mean scores is to focus on improving the most teachable students. Keeping the third and fourth criterion assures that schools cannot achieve improving status while leaving many underachieving students behind.

One final criterion for identifying improving schools was added, which applied to high schools only:

5. For high schools, the average standardized difference between the four-year graduation rate and the state average is higher in the most recent two years than in the prior two years.

This criterion assures that high schools are graduating their students and not simply having more of them drop out either before or after they take the SAT.

Note that each of the criteria for identifying improving schools is relative to a statewide average or to a predicted mean score. Ideally, performance criteria could be based on an absolute rather than a relative standard. However, there is no available, generally accepted absolute standard to use. Unless an absolute standard is developed, relative standards can function well in the criteria for identifying improving schools.

Application of Criteria for Identifying Improving Maine High Schools

Three approaches to defining Improving have been attempted using four or more of the five measures (using only math and reading scores) developed for identifying "Higher Performing" status high schools.

a) First the annual average z-score was calculated using the following standardized criteria, SS, meets plus, partially meets plus, & graduation rate, creating a year z-score for each of the four years of data. The difference in prior year z-score (across 4 years) was calculated (1011 z-score minus 0809 z-score, 0809 z-score minus 0708 z-score, 0708 z-score minus 0607 z-score). If the three differences within the year average z-scores of the three criteria were all positive, the school was considered improving.

This approach did not allow for many schools to receive the status of "Improving". Some fluctuation in results across time would be considered not significantly different from a previous result, such as having 89% of your students meeting standards one year and then 88.5% meeting the next. However mathematically this would be considered a drop as would a change from 89% to 80%. This approach was too sensitive to yearly fluctuations in results and was not used for the purposes of identifying "Improving" schools.

b) Next each criteria, SS, meets plus, partially meets plus, & graduation rate was kept separate and differences were calculate. All differences within the criteria needed to be positive and all criteria changes needed to be positive to be considered "Improving".

This approach was also too restrictive in having a school meet all conditions.

c) Averaging the first two years of data and the last two years of data within each criteria then calculate the difference between the two. This was done for all 5 criteria SS, SS better than peers, meets plus, partially meets plus, & graduation rate. If all 5 criteria differences were positive then the school may be considered "Improving".

This final approach allowed for all 5 criteria to be considered and for year to year fluctuations to be muted so that an overall positive, "Improving" trend could be observed and allowed for more schools to meet the criteria and qualify as "Improving".

Once the Improving High Schools were identified, the final step was selecting the case study schools. Several criteria were used in selecting a representative sample of high schools. These included: (1) school size; (2) geographic location; and (3) level of poverty. Application of these additional selection criteria resulted in the identification of five case study schools.

The list of identified improving high schools appears on subsequent pages.

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
1	Higher Performing	High Returns	More Efficient	Typical	High Returns	Typical	1	1	1	1	1
2	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	1	1	.	1	1
3	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	1	1	1	1	.
4	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	1	1	1	1	.
5	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	1	1	1	.	.
6	Higher Performing	High Returns	More Efficient	Typical	Mixed Returns	Typical	.	.	.	.	1
7	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	1	1	1	1	1
8	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	.	.	.	.	.
9	Higher Performing	High Returns	More Efficient	Typical	High Returns	Typical	1	1	1	1	1
10	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	.	1	1	.	1
11	Higher Performing	High Returns	More Efficient	Higher Performing	High Returns	Efficient	1	.	1	1	1
12	Higher Performing	Mixed Returns	Typical	Higher Performing	Mixed Returns	Typical	1	1	1	1	1
13	Higher Performing	Low Returns	Typical	Higher Performing	Low Returns	Typical	1	1	.	1	.

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
14	Higher Performing	Low Returns	Typical	Higher Performing	Low Returns	Typical	.	.	.	.	1
15	Higher Performing	Low Returns	Typical				.	.	.	.	1
16	Higher Performing	Low Returns	Typical				1	1	1	1	1
17	Higher Performing	Mixed Returns	Typical	Typical	Low Returns	Typical	1	1	1	.	1
18	Higher Performing	Mixed Returns	Typical	Higher Performing	Mixed Returns	Typical	.	.	.	.	1
19	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	1	.	.	1
20	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	.	.
21	Typical	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	.	.	1	1	.
22	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	.
23	Typical	Low Returns	Typical	Typical	Low Returns	Typical	1	.	1	1	.
24	Typical	High Returns	Typical	Typical	High Returns	Typical	1	.	.	.	1
25	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	.	1	.	.	1

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
26	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	.
27	Typical	High Returns	Typical		High Returns		1	1	1	1	1
28	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	.
29	Typical	High Returns	Typical	Typical	High Returns	Typical		1	1	1	1
30	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	1
31	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	1	1	1	.
32	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	.	.	.	1
33	Typical	High Returns	Typical	Lower Performing	High Returns	Typical	1	.	1	1	.
34	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	1
35	Typical	Low Returns	Typical				.	.	.	.	.
36	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	.	1	1	.
37	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	1	1	1	.

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
38	Typical	Mixed Returns	Typical	Higher Performing	Mixed Returns	Typical	1	.	.	1	.
39	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	1
40	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	.	.	.	.	.
41	Typical	High Returns	Typical	Higher Performing	High Returns	Efficient	.	.	.	.	1
42	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	.	1	1	.
43	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	.	1	.
44	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	1
45	Typical	High Returns	Typical	Typical	Low Returns	Typical	1	1	1	1	1
46	Typical	Low Returns	Typical	Typical	Low Returns	Typical	1	1	.	.	1
47	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	.	.	1	.
48	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	1	.	1	.
49	Typical	High Returns	Typical	Typical	High Returns	Typical	1	.	1	1	.
50	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	1	1	1	.	.

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
51	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	1
52	Typical	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	.	.	1	.	1
53	Typical	High Returns	Typical	Typical	High Returns	Typical	1	.	1	1	.
54	Typical	Low Returns	Typical	Typical	Mixed Returns	Typical	1	1	1	1	.
55	Typical	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	1	1	1	1	.
56	Typical	Low Returns	Typical				.	.	.	.	.
57	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	1	1	1	1
58	Typical	Low Returns	Typical	Typical	Low Returns	Typical	1	1	.	1	1
59	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	.
60	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	1	.	1	1	.
61	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	1
62	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	1	1	1	.
63	Typical	High Returns	Typical	Typical	Mixed Returns	Typical	.	.	.	.	1

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
64	Typical	Mixed Returns	Typical	Typical	High Returns	Typical	.	.	.	.	.
65	Typical	High Returns	Typical	Typical	High Returns	Typical	1	.	1	1	1
66	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	1	1	1
67	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	.	1	1	.
68	Typical	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	1	1	1	1	1
69	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	1	1	1	1	1
70	Typical	High Returns	Typical	Typical	High Returns	Typical	1	.	1	1	.
71	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	1
72	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	.
73	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	.
74	Typical	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	.	1	.	.	1
75	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	.	.	.	.

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
76	Typical	Low Returns	Typical				1	1	.	.	1
77	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	1	1	1	1	.
78	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	1	1	1	1
79	Typical	Low Returns	Typical	Typical	Mixed Returns	Typical	.	.	.	1	.
80	Typical	Mixed Returns	Typical	Typical	Low Returns	Typical	1	1	1	1	.
81	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	.	.	.	1
82	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	1	.	1	1	1
83	Typical	Low Returns	Typical	Typical	Mixed Returns	Typical	1	1	1	1	1
84	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	1	1	1	1
85	Typical	High Returns	Typical	Typical	High Returns	Typical	1	1	1	1	.
86	Typical	Low Returns	Typical	Typical	Low Returns	Typical	1	.	1	1	.
87	Typical	Low Returns	Typical	Typical	High Returns	Typical	.	.	.	.	.
88	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	1	.	.	1	1

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
89	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	.	1	1	.	.
90	Typical	Mixed Returns	Typical	Typical	Low Returns	Typical	1	1	1	.	1
91	Typical	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	1
92	Typical	Mixed Returns	Typical	Typical	Mixed Returns	Typical	1	.	1	.	1
93	Typical	Low Returns	Typical	Typical	High Returns	Typical	.	.	.	.	.
94	Typical	High Returns	Typical	Typical	High Returns	Typical	1	.	1	1	1
95	Typical	High Returns	Typical	Typical	Mixed Returns	Typical	.	.	.	.	.
96	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	.	.	.	.
97	Typical	Low Returns	Typical	Lower Performing	Low Returns	Inefficient	1	1	1	1	1
98	Typical	Low Returns	Typical	Typical	Low Returns	Typical	.	1	.	.	1
99	Typical						.	.	.	.	1
100	Lower Performing	High Returns	Typical	Typical	High Returns	Typical	.	.	.	.	1
101	Lower Performing	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	1	1	1	.	1

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
102	Lower Performing	Mixed Returns	Typical				.	.	.	.	.
103	Lower Performing	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	1	1	1	.	.
104	Lower Performing	Mixed Returns	Typical	Lower Performing	Mixed Returns	Typical	.	.	.	.	.
105	Lower Performing	High Returns	Typical	Lower Performing	Mixed Returns	Typical	.	.	.	.	.
106	Lower Performing	High Returns	Typical	Lower Performing	High Returns	Typical	1	1	1	1	1
107	Lower Performing	Low Returns	Less Efficient	Typical	Low Returns	Typical	.	.	.	.	.
108	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	.	.	1	.	1
109	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	.	.	.	.	.
110	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	1	1	1	1	.
111	Lower Performing	Low Returns	Less Efficient				.	.	.	.	.
112	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	1	.	1	.	.
113	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	1	1	1	.	1

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
114	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	.	.	.	1	.
115	Lower Performing	Low Returns	Less Efficient	Typical	High Returns	Typical	1	.	1	1	.
116	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	1	1	1	1	.
117	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	1	1	.	1	.
118	Lower Performing	Low Returns	Less Efficient				1	1	1	1	1
119	Lower Performing	Low Returns	Less Efficient	Lower Performing	Low Returns	Inefficient	.	.	.	.	.
120							.	.	.	.	1
121							1	.	.	1	1
122											1
123							1	.	1	1	.
124							1	.	.	1	1
125							1	.	1	1	.
126							.	.	.	.	.

Maine High School Improving Schools List 07/2012

School	Performance 11-12	Return 11-12	Efficiency 11-12	Performance 08-09	Return 08-09	Efficiency 08-09	Scale Score Better than State	Scale Score Better than Peers	Meeting or Exceeding % Better than State	Partially Meeting Plus % Better than State	Graduation Rate Better than State
127							1	.	1	1	.
128							.	.	.	.	1
129							.	.	.	.	.
130							1	.	1	1	.