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***Elementary and Secondary Education***

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| Mitchell D. Chester, Ed.D.*Commissioner* |  |

# MEMORANDUM

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| **To:** | Members of the Board of Elementary and Secondary Education |
| **From:**  | Mitchell D. Chester, Ed.D., Commissioner |
| **Date:**  | April 16, 2011 |
| **Subject:** | Proposed Regulations on Evaluation of Educators, 603 CMR 35.00 |

Effective teachers and leaders matter for all students. No other school-based factor has as great an influence on student achievement as an effective teacher.[[1]](#footnote-1) Effective leaders create the conditions that enable powerful teaching and learning to occur. The central purpose of public education is to advance learning for all students. Ensuring that every child is taught by effective teachers and attends a school that is led by an effective administrator is key to addressing the proficiency gap.

A strong system of educator evaluation is a vital tool for improving teaching and learning. Unfortunately, as the Statewide Task Force on the Evaluation of Teachers and Administrators (Task Force) noted in its March 2011 report, "In its present state, educator evaluation in Massachusetts is not achieving its purposes of promoting student learning and growth, providing educators with adequate feedback for improvement, professional growth, and leadership, and ensuring educator effectiveness and overall system accountability."[[2]](#footnote-2)

Across the Commonwealth today, the state of evaluation systems in public schools is inconsistent and underdeveloped, and that reality has important consequences.  Poor evaluation systems are a lost chance to provide educators with robust feedback and development opportunities. Further, the failure of evaluation systems to identify weak performing educators and either secure instructional improvements or dismiss ineffective educators is condemning successive cohorts of students to subpar instruction.

School districts, schools, administrators, and teachers deserve feedback on the practices that successfully promote student learning as well as those that do not. Without this systematic feedback, the ability of educators to improve is constrained, and professional development planning, staffing decisions, and educator growth are all severely compromised. By failing to link educator practice to student performance measures, we miss opportunities for systematic improvement, and risk overlooking exemplary practices while condoning mediocre ones.

Through this memorandum I am providing you with my recommendations for revisions to the regulations that define educator evaluation in the Commonwealth. My recommendations build on the thoughtful input of the Task Force and advance our statewide policy goal of ensuring effective teachers and leaders in the Commonwealth's classrooms and schools. By voting to send these proposed regulations out for public comment, the Board of Elementary and Secondary Education will launch a two-month period during which members of the public may provide suggestions. Before bringing the regulations back to the Board for final action in June, we will document and consider all the suggestions that are submitted.

I appreciate the commitment, experience, and expertise that the members of the Task Force have contributed to this initiative. Many of the Task Force recommendations are strong and promise to advance an agenda dedicated to ensuring continuous development of our teaching and administrative work force, and I have incorporated them into the proposed regulations. In my judgment, however, in order to be true to our mission “to strengthen the Commonwealth’s public education system *so that* *every student is prepared*…” we need to be more specific than the Task Force was regarding the use of student performance data and the consequences of consistently strong and consistently low performance. Therefore, this memorandum and my recommendations are focused primarily on these two areas.

**Summary of Recommendations**

In short, the recommendations included in this memorandum:

***Reward Excellence:*** require that districts celebrate excellence in teaching and administration;

***Promote Growth and Development:*** provide educators with feedback and opportunities for development that support continuous growth and improvement;

***Set a High Bar for Tenure:*** entrants to the teaching force must demonstrate proficient performance within three years to earn Professional Teacher Status;

***Shorten Timelines for Improvement:*** Professional Teacher Status teachers who are not proficient have one year to demonstrate the ability to improve; and

***Place Student Learning at the Center:*** student learning is central to the evaluation and development of the Commonwealth’s administrators and teachers.

**Background**

Good teaching matters for all students, and it is a key to addressing the proficiency gap. Some teachers routinely secure a year-and-a-half of gain in achievement while others with similar students consistently produce only one-half a year gain. As a result, two students who begin the year with the same general level of achievement may know vastly different amounts one year later – simply because one had a weak teacher and the other a strong teacher. Further, no other attribute of schools comes close to having the magnitude of influence on student achievement that teacher effectiveness provides.[[3]](#footnote-3) Research on school leadership underscores the importance of effective leaders in attracting, retaining, and supporting effective teachers and creating the organizational structures and environment where powerful teaching and learning is the norm.

Studies suggest that student achievement is more heavily influenced by teacher effectiveness than by students’ race, family income or background, prior achievement, or school in which they are enrolled. Further, the impact of strong teachers is cumulative. Having effective teachers for successive years accelerates student growth while having ineffective teachers for successive years dampens the rate of student learning. Research in the Dallas school district and the State of Tennessee suggests that having a strong teacher for three years in a row can effectively eliminate the racial/ethnic and income achievement gap.[[4]](#footnote-4)

***The Problem:*** Knowledge of the value and impact of effective instruction and leadership is at odds with practices in too many schools and districts. The state law on educator evaluation (M.G.L. c. 71, § 38) specifies that educator performance standards may include “the extent to which students assigned to [such] teachers and administrators satisfy student academic standards, and further refers to “the goals of encouraging innovation in teaching and of holding teachers accountable for improving student performance.” Even so, most districts are proscribed by contract or past practices from employing student performance data to inform evaluations and improvement plans. Further, evaluation protocols in too many districts inhibit the ability to gather data needed to assess strengths and weaknesses and thus inform meaningful development plans. For example, districts may have contracts or past practices that discourage or disallow the use of data gathered during unannounced classroom visits for evaluation purposes. As a result, most evaluations mask the variation in educator performance. Moreover, many educators report that they are not evaluated on a regular basis. As a consequence, teacher evaluation rarely lives up to its potential as a vital tool to improve teaching and learning.

There are a number of Commonwealth districts where labor and management have negotiated a robust evaluation system that supports educator growth and student achievement. Most state and local officials with whom I speak, however, are unabashedly negative about the quality of educator evaluation and development opportunities. Unfortunately, teachers and administrators who report that evaluation is a valued and valuable exercise are the exception and not the rule.

***National Research:*** The low quality of typical evaluation programs is increasingly well documented in national studies. One example, “The Widget Effect: Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness” (The New Teacher Project, 2009), found that evaluation systems in 12 districts (representing four states) fail to provide feedback on teacher performance and that less than one (1) percent of teachers receive unsatisfactory ratings.

***Massachusetts Evidence:*** A National Center on Teacher Quality (NCTQ) report, “Human Capital in Boston Public Schools: Rethinking How to Attract, Develop, and Retain Effective Teachers” (2010), found that only one-half of teachers had been evaluated during a two-year period (school years 2007-08 and 2008-09). Further, the NCTQ study found that less than one (1) percent had been rated as unsatisfactory and that Boston’s evaluation instrument does not provide for evaluating a teacher’s impact on student achievement.

In an informal poll that the Department conducted during a March 2011 meeting of superintendents from the Commonwealth’s 22 urban school districts, less than one-third reported being able to employ student performance data as evidence for teacher evaluation. The proscription against evaluating teacher impact on student achievement was an artifact either of contract language or established past practice. Likewise, 15 of the 22 districts reported that they are not allowed to conduct unannounced classroom visits for purposes of collecting data to be used in evaluations.

A recent review of supervisor ratings of teachers in one low-achieving Massachusetts urban district revealed the following: Teacher evaluations culminate in ratings of 19 indictors for each teacher. The negotiated evaluation protocol for the district requires the supervisor to rate a teacher as Satisfactory on each indicator if there is at least one positive example of performance for the indicator. To illustrate, there are 14 examples of performance that define the indicator, “the teacher plans instruction effectively.” The evaluator is obliged to rate the indicator as Satisfactory if the teacher performs at a satisfactorily level on only one of the 14 performance examples. In a random sample of 58 district teachers (1,102 total indicators), only one (1) indicator for one teacher was rated less than Satisfactory.

One measure of student achievement to which teachers and administrators pay considerable attention is the state tests. The MCAS is a key barometer of student, school, district, and state level achievement. Some teachers and administrators assert that standardized assessments such as MCAS are not suitable for discerning variation in the effectiveness of instruction. They argue, in part, that such tests provide an unreliable snapshot of the impact of instruction – even when achievement gains based on prior achievement are calculated.

The table that follows displays student growth scores in one K-8 Massachusetts school that serves a diverse population based on race/ethnicity, language background, and income background. Indeed, for many educators, the evidence from MCAS alone is mixed when viewed over time. The median Student Growth Percentiles[[5]](#footnote-5) for three years demonstrate that at most grades, the pattern of growth varies over time. There are exceptions, however. Compared to their peers statewide with similar prior achievement, students in grade four in this school consistently underperform in English/language arts while students in grade six consistently outperform in both English/language arts and mathematics. The MCAS growth data provides a clear signal where instruction is consistently strong or weak and is too important to ignore.

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| **Median Student Growth Percentile by Grade and Subject for Massachusetts K-8 School** |
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| **English Language Arts** |
|  | **2008 SGP** | **2009 SGP** | **2010 SGP** |
| **Grade 4** | 33.0 | 29.0 | 28.0 |
| **Grade 5** | 33.0 | 59.0 | 68.0 |
| **Grade 6** | 73.0 | 74.0 | 70.0 |
| **Grade 7** | 43.0 | 35.5 | 53.0 |
| **Grade 8** | 43.0 | 45.0 | 54.0 |
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| **Mathematics** |
|  | **2008 SGP** | **2009 SGP** | **2010 SGP** |
| **Grade 4** | 47.0 | 35.0 | 42.0 |
| **Grade 5** | 37.0 | 70.0 | 40.0 |
| **Grade 6** | 87.0 | 87.0 | 88.5 |
| **Grade 7** | 46.0 | 23.0 | 38.0 |
| **Grade 8** | 24.0 | 31.0 | 39.0 |

***Impact of Weak Evaluation Systems:*** The failure of educator evaluation to discern variation in effectiveness is a lost opportunity to:

1) provide improvement-oriented feedback that promotes professional growth;

2) identify highly effective educators and distill lessons learned from their practices;

3) tap the expertise of particularly effective educators as teacher leaders and peer coaches;

4) provide struggling and developing educators (those in the first years of practice) with the support they need to improve and grow; and

5) consider performance in determining assignment and compensation.

***Perhaps most importantly, the failure of evaluation systems to identify weak performers and either secure instructional improvements or dismiss ineffective educators condemns successive cohorts of students to subpar instruction***.

**Principles Guiding My Recommendations**

The recommendations outlined in this memorandum and in the accompanying draft regulations are guided by the following principles. Educator evaluation is intended to:

1. provide feedback that supports continuous educator development – evaluation is primarily about development and not primarily about sorting and shedding;
2. recognize and reward excellence in teaching and administration;
3. learn from the practices of effective educators;
4. recruit effective educators to support the development of their peers;
5. provide struggling and developing educators with the support and feedback they need to improve and grow; and
6. dismiss educators who, despite the opportunity, continue weak performance.

***Most importantly, educator evaluation should ensure that each student in the Commonwealth is taught by an effective teacher and that an effective administrator leads each school.***

**Key Elements of the Proposed New System**

**Student Performance Measures**

Each district must adopt a district-wide set of set of student performance measures for each grade and subject that permit a comparison of student learning gains:

• At least two measures of student learning gains, including MCAS Student Growth Percentiles where they exist, must be employed for each grade and subject. The measures of student learning from which districts may select include commercially available assessments, Department-developed assessments, district-developed assessments, and student work samples. Districts will report the process they use to reconcile discrepancies between MCAS growth and local assessments of student performance.

• Aggregate school, grade, or department MCAS Student Growth Percentiles may be employed for evaluations of individual teachers (including those in non-tested grades and subjects) as one measure of student learning gains.

• Evaluators determine whether each educator’s impact on student learning is low, moderate, or high. For each year of instruction: moderate impact is represented by student learning gains of a year’s growth; growth of less than one year represents low impact; and high impact is represented by growth of more than one year. As with expected MCAS growth, it will be important for districts to clearly identify what constitutes low, moderate, and high student learning growth based on guidelines that the state will develop.

**Measures of Educator Practice**

Educator practice shall be evaluated according to four standards of practice, consistent with the recommendations of the Task Force:

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| **Teachers** |  | **Administrators** |
| Curriculum, Planning, and Assessment | Curriculum, Instruction, and Assessment |
| Teaching All Students / Instruction |  | Management and Operations |
| Family and Community Engagement | Family and Community Engagement |
| Professional Culture | Professional Culture |

In order to translate the standards and indicators into rubrics that will be relevant, rigorous, and practicable to the field, the recommended regulations contain modest modifications from those developed by the Task Force.

The four standards of practice are assessed through the consideration of evidence drawn primarily from the following categories:

* measures of student learning, growth, and achievement;
* judgments based on observation and artifacts of professional practice (judgments may be informed by peer review of the educator’s practice); and
* collection of additional evidence relevant to one or more standards (evidence may include feedback from students and/or parents).

The evaluator will assign one of four ratings – Exemplary, Proficient, Needs Improvement, Unsatisfactory – to each of the four standards of practice.

***Summary Rating:*** Based on her/his professional judgment and consistent with rubrics that differentiate stronger from weaker practice, the evaluator will assign one of four summary ratings (Exemplary, Proficient, Needs Improvement, or Unsatisfactory) reflecting the evidence across the four standards of practice. To receive a summary rating of Proficient or Exemplary, professional teacher status teachers must be rated Proficient or above on both the Curriculum, Planning, and Assessment and the Teaching All Students/Instruction standards. To receive a summary rating of Proficient or Exemplary, administrators must be rated Proficient or above on the Curriculum, Instruction, and Assessment standard.

**Combining Measures of Practice and Measures of Student Performance**

The Task Force recommended the incorporation of goals that encompass both practice and student learning as part of the evaluation cycle. I am recommending a specific method of incorporating measures of student performance to ensure consistent application across the Commonwealth; to assure that student performance is central to the feedback and development opportunities that we provide to educators; and to make certain that student learning is consequential to employment decisions.

The following diagram and subsequent description outline the manner in which the measures of educator practice are combined with student performance measures to determine each educator’s development/improvement plan, the timeline for evaluating the plan, the methods of evaluation, and the employment decisions that they inform. It is a graphical representation of the specific requirements that are included in our proposed regulations to the Board.

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**Green:** These are teachers and administrators for whom the evidence of student learning and of practice are both positive. There is always room for improvement, continuous improvement is a feature of effective schools and districts, and professionals welcome constructive feedback that offers the opportunity to continue to develop. Therefore:

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|  | **Non-Tenured** | **Professional Teacher Status** |
| **Self-Reflection/Self-Assessment** | Ongoing, shared with supervisor |
| **Goal Setting & Development of Plan** | Educator & supervisor jointly create developing educator plan, with goals for student learning and professional practice defined by the evaluator | Educator develops self-directed growth plan, with goals for student learning and professional practice approved by the evaluator |
| **Implementation of Plan** | Year-by-year | One- or two-year timeframe |
| **Formative Assessment/Evaluation** | Ongoing, including announced & unannounced observations that will inform the summative evaluation |
| **Summative Evaluation** | At most, annually | At most, every two years |
| **Employment Decisions** | Determine next year’s employment statusMust attain Green zone by end of third year of employment to secure PTS – including proficiency in all four standards | At least three consecutive years in Green zone to be eligible for additional roles, responsibilities, and compensationRecognition/Reward: (e.g., award ceremony, conference opportunity, performance bonus) for Exemplary educators in Green zone |

 ***It should be noted that performance at the Proficient or higher level is the expectation for the Commonwealth’s educator workforce. Needs Improvement is not intended to be a minimum expectation.***

**Yellow:** These are teachers and administrators for whom either the evidence of student learning or of practice raises concern. In light of the mixed evidence, and in the interest of ensuring the strongest possible instruction for students, more intensive attention to evaluating, providing feedback, and monitoring ongoing performance is called for. Therefore:

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|  | **Non-Tenured** | **Professional Teacher Status** |
| **Self-Reflection/Self-Assessment** | Ongoing, shared with supervisor |
| **Goal Setting & Development of Plan** | Improvement plan at sole discretion of district that identifies specific areas for improvement and may include goals for student learning and professional practice  | Evaluator creates directed growth plan that identifies specific areas for improvement and goals for student learning and professional practice Directed growth plan of no greater than one year |
| **Formative Assessment/Evaluation** | Ongoing, including announced & unannounced observations that will inform the summative evaluation |
| **Summative Evaluation** | At least every 90 daysMove to either Green or Red zone based on summative evaluation | At least annuallyMove to either Green or Red zone based on summative evaluation |
| Resolving Discrepancies:If student gains are low and evaluator rates educator Proficient or Exemplary, the evaluator’s supervisor must confirm the rating – except in the case where the superintendent is the evaluator – in all cases the superintendent has the final authority |
| **Employment Decisions** | Dismissal at any timeAutomatic non-renewal after three consecutive years in Yellow and/or Red zones | Dismissal at any time for non-performance following unsuccessful directed growth plan |

**Red:** These are teachers and administrators for whom the evidence both of student learning and of practice is of concern. Unless there is rapid improvement in performance, we expose successive cohorts of students to ineffective instruction. Therefore:

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|  | **Non-Tenured** | **Professional Teacher Status** |
| **Self-Reflection/Self-Assessment** | Ongoing, shared with supervisor |
| **Goal Setting & Development of Plan** | Improvement plan at sole discretion of district | Evaluator creates improvement plan with no more than one-year timeframe, that identifies specific areas for improvement and may include goals for student learning and professional practice  |
| **Formative Assessment/Evaluation** | Ongoing, including announced & unannounced observations that will inform the summative evaluation |
| **Summative Evaluation** | At least every 90 days | At least annually |
| Resolving Discrepancies:If student gains are low and evaluator rates educator Proficient or Exemplary, the evaluator’s supervisor must confirm the rating – except in the case where the superintendent is the evaluator – in all cases the superintendent has the final authority |
| **Employment Decisions** | Dismissal at any timeAutomatic non-renewal after three consecutive years in Yellow and/or Red zones | Dismissal at any time for non-performance |

***Distinguishing Teachers from Administrators:*** The manner of combining measures of practice with those of student performance applies differently to administrators than teachers in some respects. However, the components of self-reflection, goal-setting, growth plan implementation, and formative and summative evaluation – including escalating consequences for weak practice and low student performance – are intended to apply to administrators as well as teachers. Notwithstanding, these recommendations are not intended to infringe upon the discretion that districts currently under individual administrator contracts. Thus, while the attached regulations apply to teachers and administrators who serve under a collectively bargained contract, it is my hope and the Task Force’s intention that they will inform the evaluation of educators who serve under individual employment contracts.

**Data Collection**

Districts will provide the Department with individual educator evaluation data, including:

• summary rating;

• each of the four standards of practice ratings; and

• low, moderate, or high student performance impact rating.

The recommended regulations continue safeguards against the disclosure of individual educator personnel records.

**Implementation Timeline**

The Department of Elementary and Secondary Education will support the implementation of the new evaluation regulations over the next three years. We are in the process of developing a model evaluation prototype that we are vetting with districts that have Level 4, “underperforming” schools. Key components of the prototype will include:

1. Contract language describing process, timelines and collection of evidence;
2. A rubric for each standard and core indicator that describes professional practice vividly and clearly at four levels of performance and is differentiated for roles, e.g., classroom teacher, counselor, caseload teacher;
3. Examples of ways to collect and use student, staff and parent feedback (initially for administrators).

We will be supporting the efforts of these districts to adopt, adapt and/or develop student performance measures at each grade and subject. Likewise, we are helping Level 4 districts create protocols by which goals for student learning and professional practice will be established. These goals will become the benchmarks for each educator’s growth and development plan.

At the same time, we will be encouraging districts throughout the state who are eager to proceed with adopting the new framework to do so, so that our piloting work will broaden beyond these Level 4 schools. Conversations with the head of the state superintendents' association indicate that there are a number of districts who would seize this opportunity to become so-called early adopters, and we will learn a great deal from their experience.

Department staff will be developing orientation tools and resources for a variety of audiences, on-line and hybrid professional development on key features of the new system, and a web-based library of resources. We hope to develop professional practice networks and expect to provide regular updates of the guidance based on learning from the field, other states’ efforts and national research.

The prototyping work with these schools and districts (Level 4 and others) will be disseminated statewide – initially with Race to the Top participating districts. We will convene districts in joint planning and development activities so that there are opportunities for sharing instruments, expertise, and protocols. Our Race to the Top budget includes a substantial investment in the development and implementation of the new evaluation regulations. The Department is comprehensively reviewing the implementation support strategies it articulated in the light of these proposed new regulations. An interdepartmental working group led by Deputy Commissioner Karla Baehr is spearheading this work. It will result in the development of the technical assistance, training, and support that districts, educators and evaluators need to ensure that the new framework is implemented with fairness and consistency across the state.

Two areas where DESE expects to concentrate assistance are the conduct of classroom observations and in the identification of measures of student performance – particularly in untested grades and subjects. Technical assistance will be available regionally across the state as well as through statewide and on-line workshops. In addition, I anticipate that early adopting districts and statewide professional organizations will be resources for later adopting districts, and statewide professional organizations will support this effort through workshops at their conferences, communication, etc.

In short, the implementation will occur over three years:

• By the fall of 2011, based on direction and guidance from the Department, each Level 4 school will begin implementing an evaluation system consistent with the regulations, including the adoption or development of initial measures of student learning in addition to MCAS growth scores that permit a comparison of student learning gains. Other "early adopter" districts will be invited to participate in this effort.

• By the fall of 2012, based on direction and guidance from the Department, each Race to the Top district will have completed collective bargaining and begun implementing an evaluation system consistent with the regulations, including the adoption or development of initial measures of student learning in addition to MCAS growth scores that permit a comparison of student learning gains.

• By the fall of 2013, based on direction and guidance from the Department, each Commonwealth district will have completed collective bargaining and implemented an evaluation system consistent with the regulations, including the adoption or development of measures of student learning in addition to MCAS scores that permit a comparison of student learning gains.

**Looking Ahead**

The regulations I am proposing call for significant consequences based on performance ratings in which student learning plays a consequential role. First, we should regularly celebrate excellence in the profession. We rarely do enough to recognize and award exemplary teaching and administration. These regulations call on districts to identify tangible ways to recognize and reward their exemplary educators.

Second, we should take advantage of the expertise of our best teachers through new teacher-led roles. These regulations create the mechanism for identifying potential teacher-leaders, which will be supplemented by endorsements to licensure for these new roles that DESE is developing under its Race to the Top grant.

Third, the proposed regulations raise the standard for earning professional teacher status after three years. No longer can educators who are not yet proficient earn professional teacher status with the hope that they will someday develop into proficient educators. These regulations “call the question” by the end of the third year: unless educators earn proficient ratings on each of four standards, they cannot be granted professional teacher status.

Fourth, another way that these regulations “call the question” is that they shorten the time for experienced educators who are performing below proficiency to achieve proficiency. The goals identified in improvement plans must be achieved within no more than one year in order for an educator to retain employment.

That said, there are further policies that may be worth considering once the new evaluation system called for in these regulations is fully implemented in districts across the Commonwealth and confidence in its fairness and transparency is warranted. Some districts already make compensation decisions based on performance, including rewarding individual, team and/or school performance, or withholding salary increments for educators rated in need of improvement or unsatisfactory. Some districts use performance as a factor in transfer, assignment, and/or lay-off decisions.

Going forward, we need to learn from the experiences of districts that are using performance in a more explicit and significant manner. The Task Force did not explore these possibilities. Nor have I yet secured widespread input on them. These are conversations worth having down the road as we learn more.

**Conclusion**

Investment in education reform in Massachusetts has paid large dividends as our students’ achievement has soared. The revamping of educator evaluation builds on our previous investment. We know that good instruction matters and is key to closing proficiency gaps. We know that we can provide better feedback to our administrators and teachers than our current evaluation systems provide – feedback that will help them identify opportunities for strengthening the vital work that they do to educate and inspire all of our students.

The effort to implement these recommendations will take several years. The changes outlined in the new regulations are not simply technical – they represent a culture shift for most school districts. Placing student learning at the center of discussions of educator effectiveness needs to become the norm in every school and district.

The heart of our challenge in Massachusetts public education is to move from good to great, with respect to student and educator performance. While this proposal to improve educator evaluation is ambitious and bold, it is achievable and, most importantly, it is work that is worth doing. These regulations are critical to helping meet that challenge.

I look forward to our discussion of this important topic.

1. Darling-Hammond, L. (2000), “Teacher Quality and Student Achievement: A Review of State Policy Evidence.” Education Policy Analysis Archives, 8(1).. [↑](#footnote-ref-1)
2. Massachusetts Task Force on Evaluation of Teachers and Administrators (March 2011), "Building a Breakthrough Framework for Educator Evaluation in the Commonwealth." Report to the Commissioner and Board of Elementary and Secondary Education, <http://www.doe.mass.edu/boe/docs/0311/item1_breakthroughframework.pdf>. [↑](#footnote-ref-2)
3. Hanushek, E. (2010), “The Economic Value of Higher Teacher Quality.” National Bureau of Economic Research [↑](#footnote-ref-3)
4. Kevin Carey, “The Real Value of Teachers: Using Information about Teacher Effectiveness to Close the Achievement Gap,” Thinking K-16, Vol. 8, Issue 1, Winter 2004. [↑](#footnote-ref-4)
5. Percentiles below 40 signal that students are losing ground compared to students with similar academic histories; percentiles of 40 to 60 represent typical progress; and percentiles over 60 identify students whose progress exceeds that of peers with similar prior academic achievement. [↑](#footnote-ref-5)