



QUALITY EDUCATION MODEL

FINAL REPORT
AUGUST 2012

QUALITY
EDUCATION
COMMISSION

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AUGUST 1, 2012

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PREFACE

The United States and much of the rest of the world currently are in the worst economic downturn since the Great Depression. In most U.S. states, state and local revenues have declined dramatically and have been slow to recover. The economic crisis has resulted in education budget cuts that have shortened the school year, shrunken the education workforce, and eliminated many district classes and activities. Students have borne the brunt of these cuts, experiencing more crowded classrooms, less opportunity for individual attention, and fewer course and extra-curricular options in many cases. Districts have also laid off teachers, support staff, and administrators, exacerbating the lack of demand and unemployment crisis that are at the root of the sluggish economic recovery. Funding for Oregon's public services depends on tax revenue generated by a robust economy, but at the same time a robust economy depends on a well-educated, productive workforce. The more innovative economy and higher incomes that come with a better-educated population are likely to be the keys to Oregon's long-term prosperity.

Led by Governor John Kitzhaber and the Oregon Legislature, Oregon has initiated a broad set of education reforms that will affect all levels of education. Among the most significant reforms in 2011 were SB 250, which impacted the governance and funding of Education Service Districts; SB 552, which eliminated the elected State Superintendent of Public Instruction; and SB 909, which created the Oregon Education Investment Board and a Chief Education Officer position as well as new governance bodies for higher education and early learning. In 2012, SB 1581 required education entities to enter into achievement compacts with the Oregon Education Investment Board; and HB 4165 defined the powers and responsibilities of the Early Learning Council and created the Youth Development Council. These reforms are intended to improve the educational outcomes at all levels of the education system and reduce the cost of education delivery. The reforms build on actions already taken by the State Board of Education, raising graduation requirements and changing the focus for earning a diploma to student demonstrations of academic proficiency rather than credits and seat time. The board also adopted the national common core educational standards, designed to establish a common set of rigorous standards in all states.

A dominant feature of these initiatives is the integration of all levels of education—from pre-kindergarten through higher education—into a coherent system that provides a seamless continuum of education services better tailored to individual student needs. Currently, a lack of shared expectations and poor information flows make key transitions (Pre-school to kindergarten, elementary to middle school, middle to high school, high school to higher education) more difficult than they need to be for students, and in the process learning time can be lost and students can become disillusioned with the system.

The proposed reforms promote what Governor Kitzhaber has called a “tight-loose” approach to education governance. This means the state will be “tight” on standards and expectations for student outcomes that it requires of educational institutions, but “loose” on the methods the institutions may use to meet those standards and expectations. In other words, the state sets expectations for student outcomes, and then gives schools flexibility in deciding how to best achieve those outcomes. This approach recognizes that Oregon students and schools will benefit by having a clear set of expectations and will also have enough flexibility and local control to tailor programs to local circumstances and needs.

The Quality Education Commission looks forward to being a resource to policymakers as the education reforms are developed and implemented. Under its current statutory charge, the Commission's focus remains on Oregon's K-12 school districts and ESDs, but as the reforms proceed, promoting integration across the entire education enterprise, a broadening of the charge will become necessary. The commission looks forward to that challenge.

EXECUTIVE SUMMARY

As the U.S. struggles through its fifth year of the economic downturn, most state and local governments continue to experience very slow revenue growth. Oregon relies heavily on the income tax to fund its K-12 schools, and income tax revenues tend to recover more slowly than other taxes after a recession. With slow income tax revenue growth, and with the limited ability of school districts to raise additional revenue on their own, nearly all Oregon school districts have made budget cuts over the past five years, and many are expecting to have to cut further in the coming year.

The funding gap—the amount by which actual school funding falls short of the level required to meet Oregon’s educational goals—continues to grow. As Exhibit 1 shows, the gap of \$2.277 billion in 2011-13 is expected to grow 7% to \$2.439 billion in 2013-15 and another 7% to \$2.609 billion in 2015-17 if the state continues to base its funding on the Current Service Level.

EXHIBIT 1: QUALITY EDUCATION MODEL FUNDING REQUIREMENTS

Billions of Dollars	2011-13	2013-15	2015-17
State Funding Requirement for Current Service Level	\$5.727	\$6.315	\$7.004
Percent Change from Prior Biennium		10.27%	10.90%
State Funding Requirement for Fully Implemented Model	\$8.005	\$8.755	\$9.613
Percent Change from Prior Biennium		9.37%	9.80%
Funding Gap: Fully Implemented Model above Current Service Level	\$2.277	\$2.439	\$2.609
Percent Change from Prior Biennium		7.11%	6.95%

Despite these funding trends, which have led to a decline in inflation-adjusted revenue per student, the percentage of Oregon students meeting or exceeding the benchmarks on state assessments has continued to increase, although the increases are slowing, particularly in science and writing. Of more concern are Oregon’s graduation rates. Just 66.2% of students who started high school in 2005-06 graduated within 4 years, and that number rose only slightly to 66.4% for those starting in 2006-07 and to 67.2% for those starting in 2007-08. Oregon’s ambitious 40-40-20 education goals, which require that 100% of students graduate from high school, simply cannot be met without a significant closing of the funding gap along with a more productive use of resources.

As part of its charge to identify best practices and evaluate funding requirements, the Quality Education Commission formed two panels for its 2012 work: the Best Practices Panel and the Cost Panel. The Best Practices Panel conducted a statewide survey and individual school interviews to characterize and compare the use of formative assessments and teacher collaboration. Using data from the Oregon Department of Education (ODE), the Panel was able to directly compare pairs of demographically similar schools that had different performance levels to specifically identify which activities made a positive difference in student learning. The Best Practices Panel found that formative assessments help teachers improve their instruction, and effective data and communication systems improve the collection and use of formative assessment data and lead to increased student achievement. Students also benefit when teachers spend more time analyzing assessment data with colleagues, when parents and students are given regular feedback, and teachers use proficiency-based grading systems derived from academic standards.

The Best Practices Panel also found that teacher collaboration is most effective when there is staff ownership of the process. Collaborative activities that emerge from teachers themselves, often informally, can be the most effective of all. Schools with a positive climate and a “can-do” attitude found ways to work together, often outside of formal systems, which led to increased performance. Without staff buy-in, additional time for collaboration is often unproductive or even counterproductive. District and building-level leadership is a crucial pre-condition to good practice, and districts and schools with more sophisticated understanding and application of educational initiatives responded more quickly to student needs and changing state goals and showed increased performance.

The Cost Panel used a multi-year dataset to follow cohorts of students as they progressed through the grades. By relating student achievement in each grade to prior achievement and to instructional expenditures at the school level, the Panel looked for relationships between spending and student achievement at different grade levels. Understanding how resources influence student achievement at different grade levels, and how achievement carries over into later grades, can provide clues about how the allocation of resources across the grades affects the level of achievement students are able to reach in high school. While not definitive, our results suggest adding resources at the late elementary grades and the middle school grades provides the most bang-for-the-buck. We do not, however, have adequate data at the pre-school and kindergarten levels to include those students in the analysis, so more research is needed, and it is critical that those data dovetail with the high-quality data we already have for K-12.

Recommendations

Since the passage of Measure 5 in 1990, funding for Oregon’s schools has been in decline. If Oregon is to achieve its goal of having all students graduate from high school, with 40% of those graduates then achieving an associate’s degree and another 40% achieving a bachelor’s degree or above, then the state needs to reverse that decline.

To that end, the Quality Education Commission recommends that the state adopt a 10-year funding plan that phases-in full funding of the Quality Education Model by the 2021-23 biennium. For the first phase, in the 2013-15 biennium, the Commission recommends a State School Fund appropriation of \$6.895 billion, 9% above the Current Service Level. The recommended State School Fund amounts for subsequent biennia in the phase-in period can be found in Exhibit 29.

Based on the work of the Best Practices and Cost Panels, the Commission also makes the following recommendations:

- School districts should improve the collection and use of data from formative assessments. The state can play a role by promoting effective tools, practices, and knowledge sharing.
- School staff can get the most benefit from formative assessments by:
 - Spending at least 60 minutes per week analyzing assessment data with colleagues
 - Giving feedback to parents weekly
 - Giving feedback to students daily

- School districts and individual schools should promote teacher collaboration and devote enough time and resources so it is implemented well. Approaches that have a high level of teacher buy-in hold the most promise for success.
- Teacher collaboration activities should include setting specific goals for improving student achievement.
- Districts should take a fresh look at the resources they allocate to individual school buildings relative to student performance. Allocating resources based on their effectiveness at increasing student achievement and graduation rates, rather than on staff to student ratios (or their variants), can help districts get the most out of their resources.

INTRODUCTION

MISSION AND PURPOSE OF THE QUALITY EDUCATION COMMISSION

The Oregon Legislative Assembly established the Quality Education Commission in statute in 2001. Under Oregon law (ORS 327.500 and ORS 327.506), the Commission's responsibilities are to:

- 1) Determine the amount of monies sufficient to ensure that the state system of kindergarten through grade 12 public education meets the quality goals established in statute.
- 2) Identify best practices based on education research, data, professional judgment, and public values, and the cost of implementing those best practices in K-12 schools.
- 3) Issue a report to the Governor and Legislative Assembly in even-numbered years that identifies:
 - Current practices in the state's system of K-12 public education
 - Costs of continuing those practices
 - Expected student performance under those practices
 - Best practices for meeting the quality goals
 - Costs of implementing the best practices
 - Expected student performance under the best practices
 - Two alternatives for meeting the quality goals

OREGON'S HISTORY OF HIGH EDUCATION GOALS

Oregon has maintained its philosophy of setting high goals for its schools and students despite the incentives inherent in the federal No Child Left Behind Act (NCLB) for states to lower their standards and despite revenue shortfalls resulting from the economic downturns of 2003 and 2008. In the 1991 Oregon Education Act for the 21st Century, legislators outlined challenging goals for the state's K-12 system of education. They called for a world-class school system in which all students are challenged by rigorous academic content standards and have the opportunity to gain knowledge and skills to reach their full potential. The State Board of Education has developed standards—guidelines for what students should know and be able to do—to implement these legislative goals.

Oregon is also in the process of phasing-in the new standards established by the Oregon Diploma, which were adopted in 2007-08. The new diploma provides greater clarity about what students in public schools are expected to learn and be able to do by the end of high school and sets higher academic standards for students, beginning with the graduating class of 2010. By 2014, when all of the new requirements have been introduced, Oregon students will be required to complete more credits—in math, English/language arts, and science—demonstrate proficiency in nine essential skills, and meet personalized learning requirements in order to earn the Oregon Diploma.

In 2011, Oregon's State Board of Education adopted the Common Core Standards, a set of rigorous academic standards developed by a collection of states under the coordination of the Council of Chief State School Officers (CCSSO). These common standards are intended to represent a national set of academic standards for all K-12 public schools.

And most recently, the Oregon legislature adopted a set of education reforms proposed by Governor John Kitzhaber that will integrate all levels of public education in Oregon—Pre-Kindergarten through higher education—and emphasize student proficiency in mastering academic content rather than seat time. In addition, the reforms seek to revise funding structures to provide incentives for desired outcomes rather than simply paying for the number of students enrolled.

The proposed reforms also promote a “tight-loose” approach to education governance, where the state will be “tight” on standards and expectations for student outcomes but “loose” on the methods the institutions can use to meet those standards and expectations. This approach will allow individual school districts, community colleges, and four-year universities to tailor their programs to the needs of their specific student populations.

PREVIOUS COMMISSION RECOMMENDATIONS

Since 2000, the Quality Education Commission’s reports have provided objective analyses of instructional best practices, school funding, and Oregon’s quality education goals. The reports’ recommendations reflect findings about student performance, per-student spending, demographic trends, class size, curriculum, and Pre-K through higher education alignment. The 2010 report focused on math instruction and math course-taking patterns in middle and high school and made the following recommendations:

- Provide more time for new teacher induction and job-embedded professional development.
- Provide adequate resources and staff so that schools can offer Algebra courses for high school credit in the 7th or 8th grade. Early introduction to Algebra concepts promotes higher achievement in high school.
- Align the timing of student course-taking with the timing of state assessments.
- Include adequate classroom spaces, smaller class sizes, and early identification of struggling students, and additional instruction time with licensed math teachers.
- Allocate time and resources to districts to develop frameworks for the articulation of math programs for 4th grade through high school.
- Develop a strategic focus on practices that build a solid academic foundation in the early grades.
- Invest in strategies and allocate additional resources where they will have the greatest impact on student performance. Time and leadership are priority investment targets.

The recommendations above continue to be worthy goals, even in a time of severe funding constraints. Many of these recommendations can be implemented by redeploying existing resources or at a modest cost in added teacher and staff planning time. The Commission hopes that schools and districts continue to incorporate these recommendations in order to improve educational opportunities for all Oregon students.

THE WORK OF THE 2012 QUALITY EDUCATION COMMISSION

Oregon’s Quality Education Model (QEM) incorporates data and assumptions about school size, demographics, staffing, professional development, technology, supplies, and other factors in order to estimate the costs of meeting the education goals established in Oregon statute. Perhaps more importantly, the model can also be used to predict the effects of supplying resources at different levels. In this way, the

QEM can be used to examine a variety of “what-if” policy questions and scenarios. For instance, what are the costs of raising or reducing class sizes, providing additional reading and math specialists, offering more professional development and collaboration time for teachers, or hiring more high school counselors? And how might student achievement outcomes change in each such scenario? The Quality Education Model allows policymakers to evaluate various policy scenarios in terms of their financial implications and compare them with the costs of providing the current level of services in Oregon schools.

Every two years the Quality Education Commission conducts an extensive, broad-based review process to examine and update the Quality Education Model. Prior reports have focused on the K-12 system’s progress toward the goal of 90 percent of Oregon students meeting the state’s academic performance benchmarks. In 2006, the Commission carefully examined the relationship between school funding and student achievement. The 2008 report explored the practices, resources, accountability, and systems improvement associated with implementing the new graduation standards that came with the creation of the Oregon Diploma. In 2010, the Commission examined the challenges for math education presented by the new Oregon Diploma requirements, and it also developed a capital cost model to supplement the operating cost model that is the core of the QEM.

In 2012 the Quality Education Commission’s Best Practices Panel expanded upon the recommendation of the 2010 Commission that the State *“Invest in strategies and allocate additional resources where they will have the greatest impact on student performance. Time and leadership are priority investment targets.”*

In 2012 the Panel focused its research on professional collaboration and formative assessment. These were the two areas of teacher practice where current educational research finds the most compelling evidence of effectiveness in ensuring improved student achievement. The Panel used an on-line survey of all active Oregon Teachers to evaluate the prevalence of teacher activities associated with professional collaboration and formative assessment. The Panel also did a follow-up analysis of the effectiveness of these same teacher activities using a second round of on-line surveying and on-site interviews of staff at higher performing and lower performing schools with similar demographics.

The Cost Panel, in addition to its regular update of the model to reflect the most recent data available, also evaluated how resource allocation among schools (elementary, middle, and high) can affect achievement as students progress through the grades. By relating the pattern of student achievement to instructional expenditures as cohorts of students progressed through the grades, the Panel sought to identify where, along the K-12 spectrum, schools were getting the most bang-for-their-buck in achieving student learning. The results have the potential to help school districts determine if they are allocating their resources across schools in the most productive way possible.

This report presents the findings and recommendations of the Commission and also contains updated estimates of the costs of operating a system of schools that can accomplish Oregon’s ambitious educational goals. This report also includes current information about school funding and student achievement in the state and discusses alternatives to full implementation of the Quality Education Model.

The Commission thanks all of the educators, school board members, parents, and community leaders across the state who contributed their time, expertise, and insights to this report. Additional information about the Commission and the Quality Education Model is available on the Oregon Department of Education website at: <http://www.ode.state.or.us/search/results/?id=166>

THE PROTOTYPE SCHOOLS

In the Quality Education Model, the school serves as the unit of analysis. In order to determine the impact of statewide increases or decreases in funding, it is necessary to understand the effects on an individual school's operations and student academic performance. To focus on the school-level, the Quality Education Model is structured around prototype elementary, middle, and high schools, each designed to help students meet Oregon's high academic standards and performance goals. Each prototype school reflects the resources needed to implement best practices and research associated with effective and high-performing schools and serves as a mechanism by which to evaluate the resource and cost implications of proposed education programs, policies, and strategies. While the prototype schools are not intended to be prescriptive, they can assist educators, policymakers, and citizens in understanding and making informed decisions about school resources and funding.

QUALITY INDICATORS

Schools

- Leadership that facilitates student learning
- Parental/community involvement
- Organizational adaptability
- Safe and orderly learning environment
- District policies to support learning

Teachers

- Teacher and teaching quality
- Teacher collaboration
- Professional development program
- Teacher efficacy

Classrooms

- Effective instructional programs and methods
- School database collection and analysis to improve instructional programs

Students

- Readiness to learn
- Connectedness to school and engagement in academics and extra-curricular programs

Quality Indicators are non-fiscal traits that indicate organizational functioning and efficiency, which the prototype schools are assumed to possess. These thirteen indicators are based on research about effective schools and serve as measures of whether a school employs effective practices and uses resources efficiently. The Quality Indicators fall into four broad categories: school-level, teacher-related, classroom-focused, and student-centered factors.

Best Practices are strategies and programs that have been demonstrated by research and experience to be effective in promoting high levels of student achievement. The prototypes demonstrate how schools of certain sizes and characteristics may be designed to implement the best practices. The Quality Education Commission identified the following essential characteristics that support best practices:

- Each student has a personalized education program.
- Instructional programs and opportunities are focused on individual student achievement of high-quality standards.
- Curriculum and instructional activities are relevant to students' lives.
- Each student has access to a rich and varied elective co-curricular and extra-curricular program.
- The school creates small learning environments that foster student connection.
- The school provides and encourages connections with significant adults, including parents, mentors, and other advisors to ensure that each student develops a connection to the greater community, along with a strong sense of self.

- The school makes data-informed decisions about the capability of programs to foster individual student achievement.
- The school at upper grade levels uses community-based and worksite learning as integral components of its instructional program.
- The school has a comprehensive staff induction program that guides recruitment and employment and provides ongoing professional development programs.
- Cost-effective management of resources allows school districts to better meet the needs of the greatest number of students.

The **Individual Prototype Schools** incorporate what research and best practices have shown to be most important in improving student achievement and provide a level of resources that adequately promotes and sustains that goal. Each prototype school includes:

- Adequate staffing
- Added instructional time and activities for students having trouble meeting standards
- Curriculum development and technology support
- On-site instructional improvement
- Professional development for teachers and administrators
- Collaboration time for teachers
- Adequate classroom supplies
- Adequate funds for building maintenance

Prototype Resource Assumptions are incorporated into each prototype school in the Quality Education Model. The basic assumptions include:

- The size of each school is within a range that research literature recognizes as efficient.
- The assumed level of teacher experience is about average for schools in Oregon.

PROTOTYPE SCHOOLS

Elementary School—340 Students

- All-day kindergarten
- Class size average of 20 in primary grades
- Class size of 24 in grades 4-5
- 4.5 FTE for specialists in areas such as art, music, PE, reading, math, TAG, library, ESL, child development/counselor

Middle School—500 Students

- Class size average of 22
- 1.5 additional teachers for math, English, and science
- Alternative programs for special needs and at-risk students
- Volunteer coordinator and community outreach worker
- One counselor for every 250 students
- Adequate campus security

High School—1,000 Students

- Class size average of 21
- 3.0 additional teachers for math, English, and science
- Alternative programs for special needs and at-risk students
- Volunteer coordinator and community outreach worker
- One counselor for every 250 students
- Adequate campus security
- School-to-work coordinator

- Each school has Internet access.
- Teachers are using technology in the design and delivery of instruction.
- The schools are located in close proximity to an urbanized area.
- The schools are slightly below the state median in socioeconomic status (40th percentile).
- The schools have approximately 13 percent of their students identified for special education.
- Eleven percent of the students are recognized as speaking English as a second language.
- The principal is knowledgeable about reform requirements and is supportive of the reform goals.
- The principal is skilled as a leader and a manager.
- Teachers are open to reform goals and the training necessary to support the reform requirements.
- Teachers possess content knowledge necessary to teach to applicable state standards.

CHANGES IN THE QUALITY EDUCATION MODEL 2012

The following exhibits depict the Commission's 2012 prototype elementary, middle, and high school. They illustrate characteristics of the QEM's prototype schools under the Current Service Level of funding and the changes that would occur under full funding of the Quality Education Model. The changes that have been incorporated are those recommended by the Commission's Best Practices and Cost Panels.

The Current Service Level Prototypes represented in Exhibits 2-4 show the characteristics of schools under current funding levels, based on actual spending patterns in Oregon schools. The Fully-Funded Prototypes show the Commission's recommended level of funding required to implement a comprehensive Quality Education Model, including all relevant resources and education programs.

EXHIBIT 2: PROTOTYPE ELEMENTARY SCHOOL—340 STUDENTS

	Current Service Level Prototype	Fully-Funded Prototype	Difference
Kindergarten	Half-day	Full-day	Doubles learning time
Average class size	23 for grades K-3 25 for grades 4-5	20 for grades K-3 24 for grades 4-5	Cuts class size by 3 for grades K-3 and by 1 for grades 4-5
K-5 classroom teachers	13.7 FTE	16.0 FTE	Adds 2.3 FTE
Specialists for areas such as art, music, PE, reading, math, TAG, library/media, second language, or child development	3.5 FTE	5.0 FTE	Adds 1.5 FTE
Special education licensed staff	2.5 FTE	3.0 FTE	Adds 0.5 FTE
English as a second language licensed staff	0.5 FTE	1.0 FTE	Adds 0.5 FTE
Licensed substitute teachers	\$120 per student	\$120 per student	
On-site instructional improvement staff	None	0.5 FTE	Adds 0.5 FTE
Instructional support staff	5.0 FTE	6.0 FTE	Adds 1.0 FTE
Additional instruction time for students not meeting standards: 20% of students	Limited	Summer school, after-school programs, Saturday school, tutoring, etc.	Additional programs for 20% of students
Professional development time for teachers	3 days	Equivalent of 7 days	Equivalent of 4 additional days
Dedicated Teacher Collaboration Time	Limited	2 hours per week	Additional 2 hours per week
Leadership development training for administrators	Limited	Equivalent of 4 days	4 additional days
Students per computer	6	6	
Textbooks	\$64 per student	\$107 per student	\$43 per student
Classroom materials & equipment	\$76 per student	\$89 per student	\$13 per student
Other supplies	\$54 per student	\$80 per student	\$26 per student
Operations and maintenance	\$742 per student	\$813 per student	\$71 per student
Student transportation	\$437 per student	\$437 per student	
State-level special education fund	\$32 per student	\$85 per student	\$53 per student
Centralized special education services	\$100 per student	\$100 per student	
Technology services	\$181 per student	\$205 per student	\$24 per student
Other centralized support	\$338 per student	\$360 per student	\$22 per student
District administrative support	\$305 per student	\$305 per student	
Education Service District Services	\$632 per student	\$744 per student	\$112 per student
Total Expenditure per Student in 2010-11	\$9,674	\$11,886	\$2,212
Percent of students meeting standards in 2010-11			
Reading	3rd grade=83% 5th grade = 79%	n/a	
Math*	3rd grade=63% 5th grade = 58%	n/a	
Percent of students expected to meet standards by 2016-17			
Reading	3rd grade=88% 5th grade = 85%	3rd grade=94% 5th grade = 91%	
Math*	3rd grade=70% 5th grade = 66%	3rd grade=83% 5th grade = 74%	

*The score required to meet the standard was raised in 2010-11, so percentages are not comparable to those in prior QEM reports

EXHIBIT 3: PROTOTYPE MIDDLE SCHOOL—500 STUDENTS

	Current Service Level Prototype	Fully-Funded Prototype	Difference
Class size in core subjects of math, English, science, social studies, second language	23	22, with maximum class size of 29 in core academic subjects	Cuts average class size by 1 in core subjects
Staffing in core subjects	20.0 FTE	21.0 FTE	Adds 1.0 FTE
Extra teachers in math, English, and science	0.5 FTE	1.5 FTE	Adds 1.0 FTE
English as a second language licensed staff	0.5 FTE	0.75 FTE	Adds 0.25 FTE
Special education and alternative education licensed staff	4.0 FTE	4.5 FTE	Adds 0.5 FTE
Media/Librarian	1.0 FTE	1.0 FTE	
Counselors	One for every 333 students	One for every 250 students	Adds 0.5 FTE
Licensed substitute teachers	\$120 per student	\$120 per student	
On-site instructional improvement staff	None	1.0 FTE	Adds 1.0 FTE
Instructional support staff	11.0 FTE	11.0 FTE	
Additional instruction time for students not meeting standards: 20% of students	Limited	Summer school, after-school programs, Saturday school, tutoring, etc.	Additional programs for 20% of students
Professional development time for teachers	3 days	Equivalent of 7 days	Equivalent of 4 additional days
Dedicated Teacher Collaboration Time	Limited	2 hours per week	Additional 2 hours per week
Leadership training for administrators	Limited	Equivalent of 4 days of training	4 additional days
Students per computer	6	6	
Textbooks	\$51 per student	\$107 per student	\$56 per student
Classroom materials & equipment	\$72 per student	\$94 per student	\$22 per student
Other supplies	\$62 per student	\$91 per student	\$29 per student
Operations and maintenance	\$791 per student	\$868 per student	\$77 per student
Student transportation	\$439 per student	\$439 per student	
Centralized special education services	\$100 per student	\$100 per student	
State-level special education fund	\$32 per student	\$85 per student	\$53 per student
Technology Services	\$184 per student	\$205 per student	\$21 per student
Other centralized support	\$324 per student	\$347 per student	\$23 per student
District administrative support	\$315 per student	\$315 per student	
Education Service District services	\$632 per student	\$744 per student	\$112 per student
Total Expenditure per Student in 2010-11	\$9,957	\$11,501	\$1,544
Percent of students meeting standards in 2010-11			
Reading	72%	n/a	
Math*	65%	n/a	
Percent of students expected to meet standards by 2016-17			
Reading	80%	87%	
Math*	70%	77%	

* The score required to meet the standard was raised in 2010-11, so percentages are not comparable to those in prior QEM reports

EXHIBIT 4: PROTOTYPE HIGH SCHOOL—1,000 STUDENTS

	Current Service Level Prototype	Fully-Funded Prototype	Difference
Class size in core subjects of math, English, science, social studies, second language	23	21, with maximum class size of 29 in core academic subjects	Cuts average class size by 2 in core subjects
Staffing in core subjects	42.0 FTE	44.0 FTE	Adds 2.0 FTE
Extra teachers in math, English, and science	1.0 FTE	3.0 FTE	Adds 2.0 FTE
English as a second language licensed staff	0.5 FTE	0.5 FTE	
Special Education and alternative education licensed staff	5.0 FTE	5.25 FTE	Adds 0.25 FTE
Alternative education and special programs	2.5 FTE	2.5 FTE	
Media/Librarian	1.0 FTE	1.0 FTE	
Counselors	One for every 333 students	One for every 250 students	Adds 1.0 FTE
Licensed substitute teachers	\$120 per student	\$120 per student	
On-site instructional improvement staff	None	1.0 FTE	Adds 1.0 FTE
Instructional support staff	20.0 FTE	20.5 FTE	Adds 0.5 FTE
Additional instruction time for students not meeting standards: 20% of students	Limited	Summer school, after-school programs, Saturday school, tutoring, etc.	Additional programs for 20% of students
Professional development time for teachers	3 days	Equivalent of 7 days	Equivalent of 4 additional days
Dedicated Teacher Collaboration Time	Limited	2 hours per week	Additional 2 hours per week
Leadership training for administrators	Limited	Equivalent of 4 days	4 additional days
Students per computer	6	6	
Textbooks	\$56 per student	\$140 per student	\$84 per student
Classroom supplies and materials	\$110 per student	\$130 per student	\$20 per student
Other supplies	\$66 per student	\$102 per student	\$36 per student
Operations and maintenance	\$846 per student	\$930 per student	\$84 per student
Student transportation	\$457 per student	\$457 per student	
Centralized special education services	\$100 per student	\$100 per student	
State-level special education fund	\$32 per student	\$85 per student	\$53 per student
Technology Services	\$188 per student	\$205 per student	\$17 per student
Other centralized support	\$328 per student	\$367 per student	\$39 per student
District administrative support	\$315 per student	\$315 per student	
Education Service District services	\$632 per student	\$744 per student	\$112 per student
Total Expenditure per Student in 2010-11	\$10,095	\$11,620	\$1,525
Percent of students meeting standards in 2010-11*			
Reading	83%	n/a	
Math	68%	n/a	
Percent of students expected to meet standards by 2016-17			
Reading	89%	93%	
Math	75%	83%	

* Starting in 2010-11 high school students took the test in the 11th grade rather than the 10th, so percentages are not comparable to those in prior QEM reports

THE BEST PRACTICES PANEL REPORT

In every iteration of the Quality Education Model report, the Commission has focused on identifying and analyzing best practices in teaching and learning. The direction, scope, and method of these analyses have been informed by reviews of educational research, data collection from Oregon educators, and comparative academic performance. This year, the Commission determined that the Panel should focus on two practices: Formative Assessment and Teacher Collaboration.

This focus is different from past years because the Panel is not attempting to discover new practices present in higher-performing schools--based on past years' school interviews and data analyses, the Panel started already having a foundation of knowledge. For example, we examined coordinated teacher planning work between grade levels and buildings that centered around standards and academic credit that benefitted the students in those schools; investing in the development of teachers as effective instructional leaders to promote student success; and a system of adequate resources and programming based on early identification of struggling students, and appropriate interventions, which resulted in greater student growth. The Panel analyzed this prior work and reviewed the literature with respect to these practices and suggested two deeper areas of study: formative assessment and teacher collaboration. The Panel was interested in analyzing, characterizing, and costing this work based on school performance data, demographic data, surveys, and interviews.

FORMATIVE ASSESSMENT

What exactly is formative assessment? It is usually defined first as being distinguished from “summative” assessment, with summative being “at the end” and formative being “along the way.” A common misconception is that formative assessments are quizzes and summative assessments are tests, with the quizzes given more frequently and in a manner that checks how the students are progressing and how they will do on the upcoming test. Modern formative assessments go beyond the notion of a quiz in their sophistication, and they are more often referred to as a “probe,” “measure,” or “curriculum-based assessment.” In addition, unlike a quiz, formative assessments are not used for the purpose of student accountability. They are important as measures that teachers use to assess and modify their own instructional practice.

Effective teachers use the data from assessments to change their practice and improve student learning. Frequent formative assessments provide a mechanism whereby teachers can get a constant and sensitive data flow showing their students' progress, allowing the teacher to monitor and adjust. Educational research on this topic confirms that student learning increases when formative assessment and appropriate teacher responses are present in the classroom. Furthermore, when the formative assessments are designed from the content standards to assess key learning targets, they provide the best guidance for resource allocations to meet school and district goals.

The Panel was specifically interested in determining how often activities associated with formative assessment are used in successful schools and classrooms in Oregon. These activities need to be designed and implemented by teachers, alone or in collaborative work structures. The assessments they use need to be reliable and valid and aligned to the summative assessments that determine the degree to which students are meeting State Standards. Most importantly, the classroom teachers and the school need to be able to change practices and create interventions when the data show the need.

TEACHER COLLABORATION

Unlike formative assessment, teacher collaboration is a much less well-defined practice. It is almost universally true that teachers meet together in grade level teams, content area departments, data teams, behavior support teams, Individualized Education Plan teams, and/or site councils. The goals and agendas for these teams, as well as their membership, group agreements, and authority, differ widely, even in the same school building. As an aggregate these meetings represent a significant investment in time and money for the school. And although the nature of teacher collaboration is complex and to some degree site-specific, it is also true that most case studies of higher performing districts and schools cite effective teacher collaboration as a key factor to explain the performance.

One practice that has been widely adopted nationally, the “Professional Learning Community” or PLC, has also been incorporated into many Oregon schools. As is true for many new ideas, PLCs are defined and implemented differently in different schools and departments. Effective PLCs can improve teacher efficacy and student learning in two fundamental ways. First, they become the natural extension of and fuel for effective formative assessment. When teachers in PLCs regularly study the standards, create common assessments, compare performance, modify and adjust curriculum together, and share resources, their time and effort translates into higher learning. Second, the subject matter focus and open practice orientation of PLCs are structured for meaningful, just-in-time professional development. When teachers in a PLC request technical support, new learning, or resources, they have a high degree of focus and investment in the process and the outcome.

Beyond Professional Learning Communities, other related structures to foster teacher collaboration have been designed and implemented in schools. Critical Friends Networks have groups of teachers meet and use protocols, of which the “consultancy protocol” is most common; Instructional Rounds groups learn together the art of objective data collection and then help teachers and schools assess certain problems of practice; Lesson Study participants co-develop lesson plans, observe each other teaching the lessons, and modify and adjust as necessary.

The Best Practices Panel is specifically interested in how teacher collaboration is used in successful schools in Oregon. Since time is such a precious resource, it is critical that the experience and effort is meaningful for teaching and learning. In addition, teacher collaboration time can be a complex and political issue. The amount of non-student contact hours, the question of whether there is a paid leadership structure to support the teacher teams, and the role of the building and district administration in creating and fostering the teams are all issues that must be negotiated, formally or informally.

DEMOGRAPHIC AND SCHOOL PERFORMANCE DATA

The Oregon Department of Education (ODE) collects demographic and Oregon Assessment of Knowledge and Skills (OAKS) data for all students and schools in the state. One way to analyze this conjunction of data sets is to consider the different demographic characteristics students (special education, free and reduced lunch, racial/ethnicity, English Language Learner, etc.) as independent variables and the school’s assessment performance as the dependent variable. Using this construct, the ODE has done regression analyses to determine how and to what extent these demographic variables tend to predict a school’s performance. This method of statistically controlling for demographic influences protects the data from any false assumptions about the effect of things like race or economic status. It personifies the mantra “all children can learn at high levels.”

To identify high-performing (HP) and low-performing (LP) schools we use a statistical model that takes into account the characteristics of the students in each school and the level of funding that each school has. We use regression analysis to relate those variables to student performance, measured by individual student OAKS scores. Research dating back to the early 1960s shows these variables to be correlated with student success.

This analysis allows us to predict the performance of students in a school given the students' characteristics and the level of funding the school has available. We then compare how the students in each school actually perform on the OAKS compared to how the statistical model predicts they will perform, given student characteristics and funding levels. If a school performs well above the predicted level, it is considered high-performing. If it performs well below the predicted level, then it is considered low-performing. This method has the advantage of taking into account student characteristics and funding levels, something that many of the other approaches to rating school performance do not.

MATCHED PAIRS ANALYSIS

From the group of high and low performing schools, 4 pairs of schools were selected for on-site interviews (one pairs of elementary schools, one pair of middle schools, and two pairs of high schools). The pairs were selected because they have comparable demographics but very different levels of academic performance on OAKS. These four matched pairs are examined individually later in this report.

INTERVIEW DATA

Panel members travelled to thirteen Oregon schools and conducted interviews with teachers and administrators. Six of the schools were elementary, with three being in the high performing category, two in the low performing, and one that scored close to its predicted score. Three of the schools were middle, with two being high and one low. Four were high schools, with two high performers and two low performers. One or two interviewers were present and they were encouraged to get direct quotes and to offer their gestalt impressions. The interview questions focused on formative assessment and teacher collaboration; sometimes the responses led to peripheral conversation and data gathering.

The schools interviewed represent all regions of the state and both rural and urban settings. However, because larger school sizes make the predicted achievement more certain and the differences more significant, small schools were not considered for the interviews. It is likely that studying small schools that have high or low performance would be informative; however, it is harder to identify trends and generalize from the small school data.

School Interviews

Panel members conducted thirteen school interviews. In every interview, school staff members were asked the same set of questions. The interview teams contacted principals who, in turn, selected the other staff to join them in the interview. The interview conditions therefore varied greatly from school to school with regard to who attended the interview and the interviewee's knowledge of school-wide practices. The themes identified below are conclusions and conjectures of the panel members, based on the evidence presented. In a later section, these themes will be compared to evidence from the teacher survey. These themes are also areas for suggested future study using a more formalized research model.

Formative Assessment

Data and communication systems: Higher performing schools tended to use district or inter-district data systems to track formative assessment progress, chronicle work sample information, and build electronic portfolios. These schools were most aware of the importance of accessible progress data, and were most likely to request more. There was particular interest in having more effective methods to offer achievement data to parents in an accessible web-based format. Effective data systems made for more effective formative assessment and teacher collaboration practices. This finding matches with what was found in the two previous Best Practices Panel reports. Teachers and building administrators support regional and state practices to improve data systems, especially to support meaningful classroom formative assessment and progress monitoring. There is a continuing call for state leadership in this area.

Student as the key agent to learning: Higher performing schools tended to focus on having students be conscious of and responsible for the learning targets in the classroom and on the progress they are making. These include portfolios, student-led conferences, peer evaluation, and specific lessons where students were taught the standards. Students facile with their own formative assessment data are better empowered and directed to foster their own education.

Proficiency-based grading: This is an approach to classroom teaching and grading that is non-traditional in two major ways: assessments are explicitly targeted to academic standards; and students have multiple opportunities to reach or exceed the standard with extra time and revision being part of the process. Often these teachers eschew letter grades (A-F) in favor of Exceeds/Meets/Nearly Meets/Does Not Meet or some other scheme to have students focus on the learning, not the grade. In Panel interviews, secondary staff who mentioned proficiency-based grading when they were answering questions about formative assessment was found only in the higher performing schools interviewed. All of the grading schemes used in these high performing schools had as their basis the state content standards and/or the Common Core Standards and the school assessments were explicitly aligned to the content of the Oregon Assessment of Knowledge and Skills. In general, proficiency-based grading appears to make students as well as staff more aware of their progress towards specific learning targets and more effective in meeting those targets.

Teacher Collaboration

Effective collaboration is more than just teacher meetings: Both high and low performing schools report that their teachers work together. The amount of time they spend meeting is not correlated with higher student achievement. What does correlate with higher achievement is the extent to which these teacher teams focus on achievement results and the amount of ownership or buy-in the teachers have with respect to the teacher team structure. Teacher choice is an important variable for effective collaboration activities. In addition, staff development activities that were requested by the teacher teams were found to be more relevant and timely to the teacher. Here, it was crucial that the district directly support collaborative activities that helped seed new practices that become engrained in the school culture.

Teachers need to own the agenda: One of the single most significant factors in high performing schools with respect to teacher collaboration was the leadership of the school and district administration in supporting the collaboration. The support that made a difference was not necessarily protected time nor extra compensation; it was empowering the teachers to speak freely, make decisions, allocate staff development resources, and have a voice in the master schedule. This supports earlier Panel findings that teacher leaders and opinion makers matter a great deal. Without teacher leadership, building or district initiatives that support student achievement have less chance of being successful.

Additional Findings

Work Ethic: Teachers and other staff appeared to be working hard in all schools, high and low performing. Most school interviews reflected the fact that staff members work before and after traditional school hours giving direct services to students. Additionally, many staff spend additional time meeting together to collaborate during their lunch and beyond the school day.

School improvement sophistication: While the surface-level responses in high and low performing schools were similar and many of the same terms were used in initial answers, higher performing schools tended to have a deeper understanding of the nuances of school improvement and had more complex and adaptive instructional systems in place. Some examples include: (1) on-going reevaluation of formative assessment tools to make sure they are valid; (2) differentiated class sizes and differentiated core instructional time in secondary schools; (3) early adoption of the Common Core Standards and common alignment of standards among district schools; (4) meeting protocols to foster effective teacher collaboration; (5) attention to creating an aligned spectrum of student interventions starting at the classroom level that allow schools to intervene in the most cost-effective and least-restrictive manner to get a response. Much of the sophistication observed in interviews is a credit to staff development work conducted over the last decade on a statewide basis. Higher performing schools tended to use trained in-house experts (those who have benefitted from the statewide initiatives), while lower performers continued to look for help regularly from outside consultants.

School climate: While it is impossible to strictly identify cause and effect in this finding, higher performing schools tended to speak more positively about their school and their effectiveness while lower performing schools tended to see themselves as victims of their context. In particular, at some schools staff members explicitly described themselves as triumphing over adversity and described this stance as a school credo. Some schools had intentional processes to identify factors beyond their control, grieve them, and then focus on the factors they can control. Schools with a positive climate and a “can-do” attitude found ways to work together, sometimes outside of formal systems, which led to increased performance.

Matched Pairs

Case 1: Elementary Pair (HP = high performing, LP = low performing)

The elementary matched pair produced a stark contrast between two schools that serve high-poverty student populations. One important condition to note is the very low quality of the facility at the LP school: teachers work in portables and in the winter rarely venture out from their classrooms. The HP facility was clean with walls filled with student work and affirming statements.

With regard to formative assessments, the HP school was notable for analyzing different formative assessment types and their relative strengths and weaknesses. In the HP school, it was clear there was an ongoing cycle of continuous improvement with regard to the building plan for formative assessment. The LP school talked in more general terms about school and district alignment. The HP school utilized a district database to submit work samples while the LP school collected writing samples and some physical portfolio documents. The HP school was intent on finding a way to use the student information systems to better communicate assessment data to parents online. The system of interventions in the HP school was centered in the classrooms, while the LP school focused more on building consultants and additional programs. The schools had a similar amount of intervention time daily for struggling students.

The HP school reported a number of staff collaborative activities, including lesson study, studio classes, and professional learning communities. However, they were very conscious of the fact that they needed more time to do the job right. The HP school had a half day every trimester, while the LP school had an early release every week. With regard to meeting structure and effectiveness, the HP interview again was notable because of the critical nature of the response: the HP staff valued meeting time and they wanted to analyze how they were doing it and improve. The HP staff also specifically noted that they share student work with each other to get detailed feedback for improvement. The interviewer noted that at the HP school, the principal and lead teacher both were excited about the work they were doing together. At the LP school the interviewer noted a lack of the feeling that the school was excelling.

Case Two: Middle School Pair (HP = high performing, LP = low performing)

Both middle schools in this pair are rural schools with enrollments of about 400 students. The HP school was closer to other schools/districts than the LP school, which faced a setting with the challenge of great geographic distance from other schools, or from “people resources.” Both faculties were well focused on improving student achievement, and were working very hard.

Both schools reported on a variety of formative assessment practices. The HP school notably had a chart in the gymnasium depicting the schools’ progress with regard to student achievement. The HP school also reported that they had district alignment for the development of formative assessments and that they used portfolios, while the LP school work was more localized and “fledgling.” The HP school had a once-a-week advisory period, but the LP school had no time for extra help for students. In fact, at the LP school, teachers did not have a prep period at all.

The answers with regard to teacher collaboration time were very similar between the schools. The HP school reported more structured planning time, but both schools were using their time in ways that focused on student achievement. One difference was that most of the HP school activities were organized by the principal and conducted with the whole staff while the LP activities were more likely to be led by a teacher and done in smaller groups. Teachers in both schools reported confidence and comfort with their leadership structures.

Case Three: High School Pair (HP = high performing, LP = low performing)

The first pair of high schools are medium to large in size (500-1000) and are the only high school in their district. Single high school districts can help create conditions that support more effective alignment. Both schools had relatively new principals who each eagerly engaged at a deep level with their staff during the interviews. However, their descriptions of the leadership styles of their predecessors and the history of district mandates helped explain the differing performance of the two schools. In the HP school, the staff fondly recalled how their last principal had given over to the staff a significant amount of decision-making responsibility. They recounted how she had led a cathartic staff process to get everyone’s input into creating an explicit list of the factors they could control with regard to their students and factors they could not control. The HP school staff had come together, and with added responsibility and authority they were functioning better as a staff. In contrast, the LP school staff had a different story of their recent past. They had implemented a mandatory Professional Learning Community structure for all staff, which produced immediate resistance and discontent with no real perceived progress for any but their math department.

With regard to formative assessments, the HP school reported that their departments had some limited success with common assessment planning and review. At the LP school most of the groups had found the PLCs “strained and uncollaborative.” The HP school specifically mentioned how important it was for

students to understand their formative assessment data and teachers used portfolios for that purpose. The portfolio system at the LP school was limited to career standard work samples and documentation. The HP school staff members were beyond the first stages in the process of common core alignment. At the LP school, they had recently worked with an on-line curriculum-auditing program from their ESD to develop power standards based on then current Oregon content standards. LP staff lamented that they needed just a year later to start the process over again to align to the newly-adopted Common Core Standards. The HP staff had specific examples of new course titles and reconfigurations that had resulted from teachers studying data and suggesting interventions. For example, they differentiated the length of specific classes to give more time on task to particular students and subjects. The LP staff commented that their freshman intervention class was unsuccessful and that it would be changed. The LP staff also mentioned staff resistance to administration suggestions that they develop more classroom interventions. The HP school used OAKS, PSAT and grades to help guide student entry into and exit from intervention classes. The LP school identified the fact that some staff feel there is a disconnect between those who need interventions and those who are actually receiving them, but they did not have a data-based description of the problem.

The LP school has had a recent history of ostensibly well-supported PLCs that are given dedicated time and guidance to help improve staff efficacy and student achievement. However, all staff agreed that these teams are only in some cases productive while in most cases they appear to be unproductive or counter-productive. The HP school had fewer formal structures than most high schools with an almost completely flat leadership model. Their recent history since the last principal was to form ad-hoc committees to address issues. Most of the productive teacher collaboration that the HP school described was squeezed in whenever possible and made more possible by having teachers who are working together in adjacent rooms. The HP teachers talked about the value of their collaboration with colleagues as being incredibly satisfying. With regard to collaboration, this case study provides somewhat counter-intuitive results. In one case a school is implementing a Professional Learning Community (although poorly) and its students are under-performing. In the other case, a school is implementing a patchwork of approaches and somehow doing that very well, creating a climate and culture of high staff and student achievement.

Case Four: High School Pair (HP = high performing, LP = low performing)

The second high school pair represents schools from large urban districts that have similar size and demographics, but entirely different organizational structures. Each school serves a relatively diverse population of over 1,300 students and a student community with a high percentage of families who qualify for free and reduced lunch. The LP school is a traditional comprehensive high school; the HP schools are part of a set of small schools that exist on the same physical campus. Three of these small schools scored in the top six in the state with regard to doing better than predicted on the 10th grade OAKS reading and math tests. The interviewers at the LP school noted that the school is recently turning around the impression that they are a poor school, with particular emphasis on increasing rigor, staffing more AP courses, and retaining high performing students. With regard to the school improvement process, the HP schools were observed as being farther along in the process in a number of dimensions. The HP school has benefitted from a large external funding source in the recent past that provided technical assistance; the LP school has only recently been awarded with more staffing to account for the school's higher needs.

Comprehensive formative assessment practices are rare in high schools. Of all the high schools interviewed in this study, the HP schools were by far the most advanced with regard to a systematic approach to ensuring student achievement. The HP schools use the same grading program and learning targets. In almost every answer given with regard to alignment and assessment, the LP school listed activities (usually teacher-specific), while the HP schools talked about frameworks and the ongoing improvement process, and they were already aligning assessments to the Common Core Standards. The HP schools also put

emphasis on students being agents in understanding their assessment data and figuring out how to improve. The HP staff was more critical of their current assessment practices: the balance between meeting as small schools and meeting in building content areas; the fact that teachers need encouragement to share student work in their PLC groups; and that teachers still need to improve with respect to how they use data. At the LP school, staff noted that they have too many initiatives, which “suffocate the core of what we’re trying to do.” They noted that it is easy to lose track of students when they focus on changes.

With regard to teacher collaboration, both the LP school and the HP schools noted how difficult this was because of insufficient time and money. The best collaboration was often serendipitous and informal. However, in the recent past the HP staff had had a tremendous amount of grant-funded time to develop professionally and personally with each other and to produce important work products like common assessments and group agreements with regard to work samples. This foundational work appears to make the HP schools better able to use the time they do find to collaborate, with established norms, meeting protocols, and a continuous improvement orientation.

SURVEY DATA

The Best Practices Panel conducted two rounds of surveys between December of 2011 and May 31 of 2012, one for all teachers in Oregon and the second for teachers in the matched pair schools. The two surveys were nearly identical and included questions designed to collect information from teachers about their involvement in activities associated with the practice of combining formative assessment and professional teacher collaboration in a system of continuous improvement. The Panel’s best practice literature and research review pointed to this practice as “high leverage” for ensuring individual student growth resulting in more equitable learning outcomes for all students.

The Best Practices Panel used the following definitions for teacher collaboration and formative assessment for both rounds of the survey:

Teacher collaboration – *Teachers working cooperatively together to continuously improve their professional practice and the learning outcomes of their students through an analysis of student data and the effectiveness of targeted interventions.*

Formative Assessment – *Classroom-based assessments providing timely information about student learning that is used to adjust instruction to improve students’ achievement of intended learning objectives/outcomes. Some examples of formative assessment techniques are an “exit slip” at the end of a class period, use of “red/green” (stop/go) cards, “thumbs up/thumbs down” responses, analogy prompts, and one- minute essays.*

In the first round 3,072 Oregon teachers responded and in the second round, 287 responded. Of the 3,359 respondents, 659 were eliminated from the analysis of survey results because they: 1) did not answer survey questions beyond the first two; 2) did not identify their school; or 3) identified a school not on the survey list of schools. Also, duplicate records were eliminated for 21 respondents who responded in both rounds of the survey.

The remaining 2,679 respondents comprise 10.6% of the total number of active K-12 classroom teachers in Oregon and represent over 1,300 schools throughout the State. The distribution of respondents across school level is shown below. The distribution is very similar to the distribution of students across the school levels, so each school level is represented in proportion to the students it serves.

EXHIBIT 5: DISTRIBUTION OF RESPONDENTS BY LEVEL

Level of School	% of Respondents by Level
Elementary School	44%
Middle School	23%
High School	29%
Combined Schools (K-8, K-12)	4%

Statewide Teacher Survey Results

The general results from the Statewide Teacher Survey are summarized below (see Appendix A for more detail). Findings from this survey include the amount of time teachers throughout the State reported spending in activities associated with professional collaboration and formative assessment. Significant progress has been made in the implementation of all activities, and activities(s) that are reported to have the highest implementation rates are highlighted in Exhibit 6 below:

EXHIBIT 6: ALL TEACHER SURVEY RESULTS

Best Practices Survey Questions for All Teachers Statewide (Listed in the order they appeared on the survey)	% of All Teachers who reported engaging in this Activity
3. Collaborate with others on curriculum choices?	65.4%
4.a Analyze student evidence from classroom assessments with colleagues 30 minutes or more per week?	59.6%
4.b Analyze student evidence from common benchmark assessments with colleagues 30 minutes or more per week?	52.5%
4.c Analyze student evidence from state assessments with colleagues 30 minutes or more per week?	31.4%
4.d Identify and implement changes in instructional practice with colleagues 30 minutes or more per week?	68.3%
4.e Reflect on and refine changes in instructional practice with colleagues 30 minutes or more per week?	64.6%
5.a Have a late start or early release schedule for teacher collaboration?	30%
6. Set goals for improving student achievement when collaborating w/colleagues usually or always?	55.3%
7.a Share learning objectives in student friendly language at least monthly with students?	97.5%
7.b Use formative assessment techniques at least monthly?	95.4%
7.c Provide students at least monthly (or more) feedback about their progress in meeting learning objective/standards?	94.7%
7.d Use targeted instructional practices at least monthly to address specific learning needs of individuals or small groups of students?	97.1%
7.e Provide feedback to parents at least monthly on the degree to which their child has mastered a specific learning objective/standard?	59.1%

These results are remarkable in that they reveal a fairly high level of implementation of activities associated with formative assessment and professional teacher collaboration even in the face of reduced funding to schools. This helps explain why the State's OAKS results continue to improve gradually. Also, they could provide critical information about activities that provide the most leverage for instructional improvement and the cost of bringing to scale these-high leverage practices throughout the State's system of K-12 schools.

Teacher Surveys Round 2

The general results from the Matched Pair survey data are summarized in Exhibit 7 below (see Appendix A for more detail). The second round of the surveys was administered to teachers in a smaller subset of

EXHIBIT 7: MATCHED PAIR SURVEY RESULTS

Best Practice Survey Questions for Matched Pairs (listed in the order they appeared on the survey)	% of Teachers from higher performing schools who reported engaging in this activity	% of Teachers from lower performing schools who reported engaging in this activity
3: Collaborate with others on curriculum choices?	54.2%	69.1%
4.a: Analyze student evidence from classroom assessments with colleagues 30 minutes or more per week?	52.0%	52.4%
4.b: Analyze student evidence from common benchmark assessments 30 minutes or more per week with colleagues?	59.2%	65.3%
4.c: Analyze student evidence from state assessments 60 minutes or more per week with colleagues?	40.7%	25.9%
4.d: Identify and implement changes in instructional practice 30 minutes or more per week with colleagues?	51.4%	49.2%
4.e: Reflect on and refine changes in instructional practice 30 minutes or more per week with colleagues?	47.9%	51.2%
5.a: Have a late start or early release schedule for teacher collaboration?	25.0%	34.0%
6: Set goals for improving student achievement usually or always when collaborating w/colleagues?	57.1%	44.0%
7.a: Share learning objectives in student friendly language at least monthly with students?	98.8%	97.2%
7.b: Use formative assessment techniques at least weekly?	88.0%	87.6%
7.c: Provide students feedback about their progress in meeting learning targets/standards on a daily basis?	31.3%	22.8%
7.d: Use targeted instructional practices at least weekly to address specific learning needs?	87.9%	79.3%
7.e: Provide feedback at least weekly to parents on the degree to which their child has mastered a specific learning objective/standard?	26.8%	18.8%

matched-pair schools. While the differences in responses between the “performing higher than predicted” and “performing lower than predicted” schools in the matched pair were not large, they do exist and they are the same activities that the Panel’s best practice and literature review pointed to as effective in improving student achievement:

- Analyze student evidence from state assessments with colleagues for at least 60 minutes per week.
- Set goals for improving student achievement when collaborating with colleagues.
- Use formative assessment techniques at least weekly.
- Use targeted instructional practices at least weekly to address specific learning needs.
- Provide feedback to students on their progress on a daily basis.
- Provide feedback at least weekly to parents on the degree to which their child has mastered a specific learning objective/standard.

Site interviews of teachers in higher and lower performing schools revealed that specific collaborative activities in these schools appear to be different, with the high-performing schools tending to focus more on the analysis of student OAKS test data and setting student achievement goals than did the low-performing schools. This result suggests a more in depth study into the form and function of teacher collaborative time in Oregon is needed to identify the detailed practices that are most effective.

Another finding involves the feedback teachers report giving to students and parents, which suggests the higher performing schools report more frequently. This result is also consistent with school interview comments from teachers in higher performing schools who were the most likely to seek better reporting technology that they could use to report information about student proficiency levels and academic progress to parents, students, and other teachers.

THE COST PANEL REPORT

IN each two-year round of the Commission’s work, the Commission’s Cost Panel updates the Quality Education Model’s cost calculations with the most recent data available and forecasts how costs will change over time. The panel also incorporates into the QEM’s cost calculations any changes in resource requirements that the full Quality Education Commission adopts. In the 2012 round of the Commission’s work, the Cost Panel also analyzed the academic progress of intact cohorts of students as they progressed through the grades. It evaluated that progress in relationship to district allocation of resources to individual schools to see if certain grades get more “bang-for-the-buck” than others. The results of that evaluation are discussed later in this section.

DATA UPDATE

The Cost Panel updates all of the model’s data and forecasts with the most recent information available. For this round of the Commission, the most recent expenditure data comes from school district and education service district (ESD) audited financial statements for the 2010-11 school year. Similarly, the latest data for wages and salaries, from Department of Education data collections, are for 2010-11. Enrollment data and student demographic data, because they are collected earlier than the financial data, are available for the 2011-12 school year.

One specific and important change to the data reported in the 2012 version of the model relates to reporting of expenditures for the Public Employees Retirement System (PERS). Many Oregon school districts issued bonds as a way to reduce the burden of rising PERS contribution rates for employers. The proceeds from the bonds (the so-called “side accounts”), are invested with other PERS assets and the earnings on the invested bond proceeds are used to help pay the districts’ PERS obligations—in effect, buying a lower employer contribution rate. For the districts that issued these bonds, the earnings on the side accounts have generally been higher than the debt service requirements on the bonds, improving the financial position of the districts.

The QEM uses the full PERS rate in its calculation of the costs of the K-12 system, but in the past did not include the side account earnings as a revenue source. This past practice is inconsistent—the side account earnings should be included either as a revenue source or as a reduction in the effective PERS rate. To correct this inconsistency, starting with the 2012 version of the QEM, we include side account earnings as a revenue source. For the 2013-15 biennium, side account revenue is forecast to be approximately \$445 million.

RESOURCE ALLOCATION AND STUDENT ACHIEVEMENT

The decline in state and local revenue from the current economic downturn has left Oregon schools with per student revenue more than 9% below the pre-recession level in 2007-08 and almost 20% below the level the Quality Education Commission recommends. With the expectation of relatively slow revenue growth for the next two or three biennia, there is increased attention on improving the efficiency in the use of existing school resources. As a first step in better understanding how Oregon school districts currently use their resources, the Cost Panel evaluated how districts allocate resources across schools and how that allocation impacts the path of student learning as students progress through the grades. This evaluation is just one part of a more comprehensive analysis of education resource use that needs to be done in order for policymakers and educators to make decisions that get the most out of Oregon’s education dollars.

Education is a cumulative process, with certain knowledge and skills that must be mastered before more advanced and complex concepts can be learned. In addition, there are limits on how much students can learn over a given period of time, both because of time constraints and because of the timing of cognitive development as children grow. These two factors mean that, if school districts are to get the most “bang-for-their-buck,” they must take into account these aspects of learning when making decisions about how to allocate resources to schools and to grades. Spending too much when students are in the early grades means those resources are not available for the later grades, when the increment of learning per dollar may be larger. Conversely, spending too little in the early grades means students are not prepared for the more complex concepts they will encounter in the later grades.

These trade-offs between spending in the early grades versus spending in the later grades suggest that there may exist an alternative allocation of spending over the grades that can increase the cumulative learning that students attain during their time in school. The primary focus for the 2012 Commission’s Cost Panel was to evaluate the impact that resource allocations across schools has on student achievement as students advance through the grades. Ideally the analysis would include the entire educational continuum—Pre-kindergarten through higher education—but Oregon currently does not have sufficient data for the Pre-K and higher education years to perform such an analysis. The Commission’s analysis, therefore, focuses on K-12 but recognizes that future analyses must incorporate Pre-K and higher education. Data collection efforts that are already underway will provide the required data to do those analyses in the near future.

The analysis described here combines student-level academic performance data and demographic information with school level financial data to evaluate whether the allocation of resources across

elementary, middle, and high schools has an impact on the highest level of achievement students are able to attain in high school for a given level of resources. Specifically, we follow intact cohorts of students through the grades, tracking the level of spending in elementary, middle, and high schools they attend and correlating that with their scores on the Oregon Assessment of Knowledge and Skills (OAKS), Oregon's standardized academic achievement test. We use multiple regression analysis to determine whether there are statistically significant relationships between spending and achievement, and we use those relationships to evaluate whether different spending patterns across schools are associated with higher levels of student achievement in high school.

The model estimates current year student achievement as a function of the prior year's achievement and current year spending for each grade for which Oregon administers the OAKS. The model also includes variables for school size and student attendance rates. The variables used are described below.

Student achievement: The student's raw score on the OAKS test (known as the RIT score).

Prior year student achievement: The student's RIT score in the prior year.

Instructional expenditures per student: The average spending for instructional purposes at the school the student attends.

School enrollment: The number of students enrolled on October 1 at the school the student attends.

Attendance rate: The percentage of total days that the student was present at school.

The equation to be estimated is shown below, with the expenditure and enrollment variables expressed in logarithmic form to account for non-linear effects. The enrollment variable also enters in quadratic form (by entering a second time as a squared term) to account for possible diseconomies of scale in very large schools.

$$\text{student achievement} = a + b \cdot \text{prior year student achievement} + c \cdot \ln(\text{instructional expend. per student}) + d \cdot \ln(\text{school enrollment}) + e \cdot \ln(\text{school enrollment})^2 + f \cdot \text{attendance rate}$$

Where *a*, *b*, *c*, *d*, *e*, and *f* are the coefficients to be estimated. These coefficients represent the estimated impacts of the factors on current year student achievement.

The two factors of primary interest—ones that can be influenced by school district resource allocation decisions—are *prior year student achievement* and *instructional expenditures per student*. Districts could, for example, choose to increase funding for elementary schools, anticipating that better student performance there will carry over and indirectly increase performance in middle school and then high school. Alternatively, districts could increase funding in high schools, foregoing the indirect impacts of added funding in elementary schools, but gaining direct impacts on student achievement of the increased high school spending.

The goal is to allocate resources in a way that gets students to the highest level of achievement by the time they finish high school (given that this analysis is limited to K-12). This requires balancing the indirect impacts on later achievement that added resources have in the early grades against the more direct impacts that more resources have in the later grades. But because the impacts of shifting greater resources to the earlier grades can fade over time (e.g., during the summer months when school is not in session), as a general rule the impacts in the early grades need to be larger than those in later grades in order to have the same eventual impact on achievement at the high school level.

Evaluated this way, the decision rule for allocation of resources is straightforward: allocate resources across schools (and across grades within schools) so that eventual impact on high school achievement is equalized across all possible allocation options. While this may sound quite technical, it boils down to something quite intuitive: add resources in the schools and grades where you get the most bang-for-your-buck, where bang-for-your-buck is defined as the eventual impact on your desired outcome—high school achievement/graduation.

Estimation Results

Using student test scores from the Oregon Assessment of Knowledge and Skills (OAKS) for math and reading, we followed intact cohorts of students through the grades and estimated the coefficients in the equation above. OAKS results for the 2006-07 school year are unreliable because the state was forced to switch from the online testing system to pencil/paper tests in the middle of the year. We could not, therefore, estimate parameters for 2006-07 or 2007-08 (because the 2007-08 equation uses 2006-07 test scores as one of its inputs). The estimated math and reading coefficients, averaged across the 10 cohorts and all years for which we have data, are shown in Exhibit 8.

EXHIBIT 8: RESOURCE ALLOCATION MODEL ESTIMATION RESULTS

	Average Instructional Spending Coefficients		Average Prior Year Achievement Coefficients	
	Math	Reading	Math	Reading
4th Grade	1.0975	0.0976	0.7518	0.7069
5th grade	-0.0367	-0.2846	0.7406	0.6956
6th Grade	0.3832	0.0949	0.8298	0.7944
7th Grade	0.4493	0.7112	0.7568	0.8105
8th Grade	-0.0387	-0.1543	0.8733	0.7077
10th Grade	0.1886	-0.2562	0.6633	0.7168

While the coefficients vary somewhat over different cohorts of students, for the math equations the results show, on average, that the direct impact of added resources on student achievement is higher in grades 4, 6, and 7. This suggests that student math achievement can be improved by adding relatively more resources to the late elementary and middle school level as more resources become available. For reading, the impact of adding more resources is largest in the 7th grade.

The coefficients on the prior-year achievement variable are considerably lower than 1.0, suggesting that knowledge and learning is only partially carried over from one grade to the next. This finding is consistent with the fact that many students have limited opportunities for academic learning over the summer months when school is not in session.

The estimation results indicate sizeable differences in the relative bang-for-the-buck of adding resources in different grades. For example, the eventual impact on 10th grade math test scores of increasing spending in the 6th grade is more than twice as large as the impact of an equivalent increase in spending in the 10th grade. In other words, enough of the achievement gain from adding more resources in the 6th carries through to the 10th grade to make it greater than the gain from adding the same amount of resources directly

in the 10th grade. For reading, the impact of adding resources in the 7th grade is considerably larger than in any other grade.

The estimated magnitude of the achievement gains are, however, relatively small. As an example, the addition of \$500 per student to the 6th grade will increase high school test scores by about 0.05 RIT points. In contrast, the addition of \$500 per student in the 10th grade will increase scores only about .02 RIT points. This analysis assumes an increase in spending for all students. If the spending were instead targeted to students with specific needs, the added resources per student served would be larger, resulting in larger impacts on achievement for those students.

Conclusions

While far from conclusive, this analysis adds to our understanding of how resources can best be used to promote higher achievement, and it also provides a good beginning in our efforts to better understand the question of how resources affect the cumulative learning of students as they progress through the grades. Our results do not find large impacts, but they do provide some guidance about where to spend additional resources when they become available. Adding resources in the early and middle grades appears to be more productive in reaching higher levels of achievement than does adding resources in the high school grades.

Because circumstances vary from district to district, however, the primary lesson of this analysis is that school districts should take a careful look at their methods for allocating resources to individual schools. Districts may be able to raise student achievement by allocating resources based on measures of student need and student outcomes as they progress through the grades rather than on simple formulas based primarily on student to staff ratios.

Finally, it is important to note that this analysis only looks at K-12, and even within K-12 cannot evaluate the earliest grades (kindergarten to grade 3) because of the lack of achievement data for those grades. A more comprehensive and useful analysis would look across the entire educational spectrum from pre-kindergarten through higher education. Previous research, for example, suggests a large payoff to high-quality pre-kindergarten program, particularly for economically disadvantaged students.

THE STATE OF SCHOOL FUNDING IN OREGON

The Quality Education Commission's second major charge is to calculate the appropriate level of funding to ensure that Oregon's K-12 education system meets its quality goals. In this way, the QEM illustrates how educational spending is linked to student performance and how resource levels impact overall achievement. For more than two decades, though, Oregon has been forced to reconcile ambitious educational goals with resource limitations.

Ballot Measure 1, passed by Oregon voters in November 2000, sought to increase education funding levels in Oregon. Still, the state continues to struggle with budgetary shortfalls and education funding levels generally regarded as inadequate. The recession following the housing market crash in 2008 left Oregon with multi-billion dollar budget shortfalls, and recovery from the recession has been slow. In each of its constitutionally mandated Measure 1 reports, the Legislature has acknowledged that the level of state resources devoted to K-12 education has been insufficient to meet the quality education goals established in Oregon law. Specifically, the legislative reports cite the following factors:

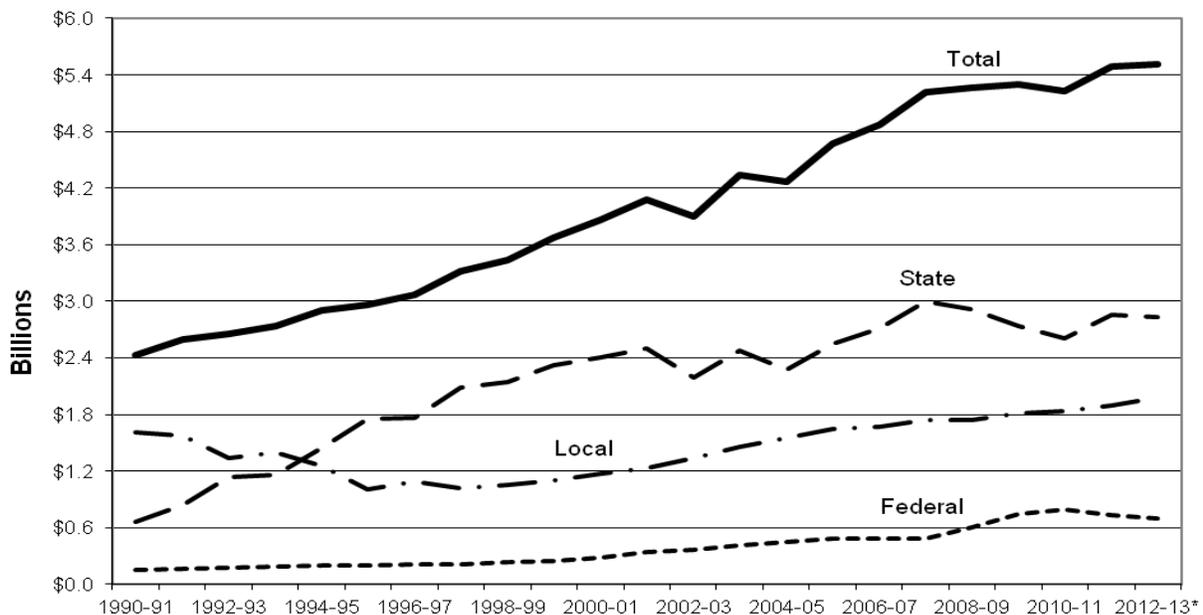
- Declines in local resources available for schools due to cuts in property taxes required by Ballot Measure 5 (1990) and Ballot Measure 50 (1997)
- State revenue declines resulting from the economic recessions
- New federal mandates not accompanied by sufficient federal funding
- Large increases in required contribution rates to the Public Employees Retirement System (PERS)
- Rapid growth in health insurance premiums paid by school districts
- Higher transportation costs faced by school districts due to increases in fuel prices

TRENDS IN SCHOOL FUNDING

Understanding the state of school funding in Oregon today requires an understanding of the property tax limitation measures passed in the 1990s. Ballot Measure 5, passed in 1990, cut school property taxes dramatically by capping the school property tax rate at \$5 per \$1,000 of market value. Despite the reduced rates (which were phased-in from 1991-92 to 1995-96), rapidly growing real estate market values in the early and mid-1990s caused property tax bills to continue to grow, and in response Oregon voters passed Measure 50 in 1997, further cutting property taxes. As a result, the amount of funding for schools has been decreasing in inflation-adjusted dollars.

Prior to the passage of Measures 5 and 50, school district and education service district combined property tax rates in Oregon averaged \$16.53 per \$1,000 of market value. For the 2011-12 tax year, they averaged \$4.09 per \$1,000 of market value, a tax rate cut of 75 percent since 1990-91. As a result of the dramatic decline in local property tax funding available for schools, more responsibility shifted to the state, with state general fund dollars becoming the primary source of funding for Oregon schools.

EXHIBIT 9: TOTAL SCHOOL DISTRICT OPERATING REVENUE

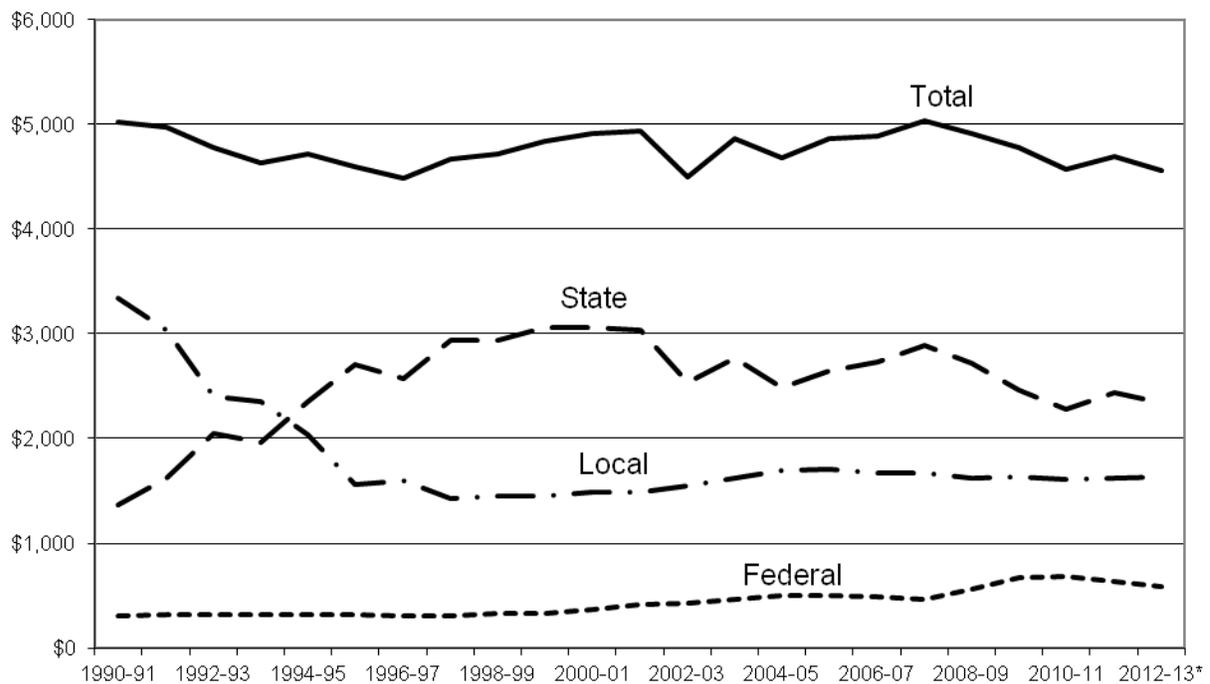


* Estimate based on legislative appropriation

Exhibit 9 illustrates trends in local, state, and federal funding for Oregon’s schools. Although state income tax revenue was able to make up for much of the lost property tax revenue throughout a period of economic growth in the 1990s, state revenue declined substantially in 2003 and again in 2008 with the onset of economic recessions. With less financial support from the state and a limited ability to raise local property tax revenues, Oregon school districts still had to balance their budgets; in many cases this has meant cutting staffing levels and shortening the school year.

K-12 total operating revenue has generally increased over time in nominal dollars (not adjusted for inflation), but education costs have risen considerably faster than have consumer prices (as measured by the Consumer Price Index). These rising costs, along with growing enrollments and changing demographics, mean that inflation-adjusted revenue available to Oregon’s school districts has declined considerably over the past two decades. Exhibit 10 shows that inflation-adjusted revenue per student fell from \$5,019 in 1990-91 to an estimated \$4,553 in 2010-11, a decline of 9.3%.

EXHIBIT 10: INFLATION-ADJUSTED REVENUE PER STUDENT



THE FUNDING GAP

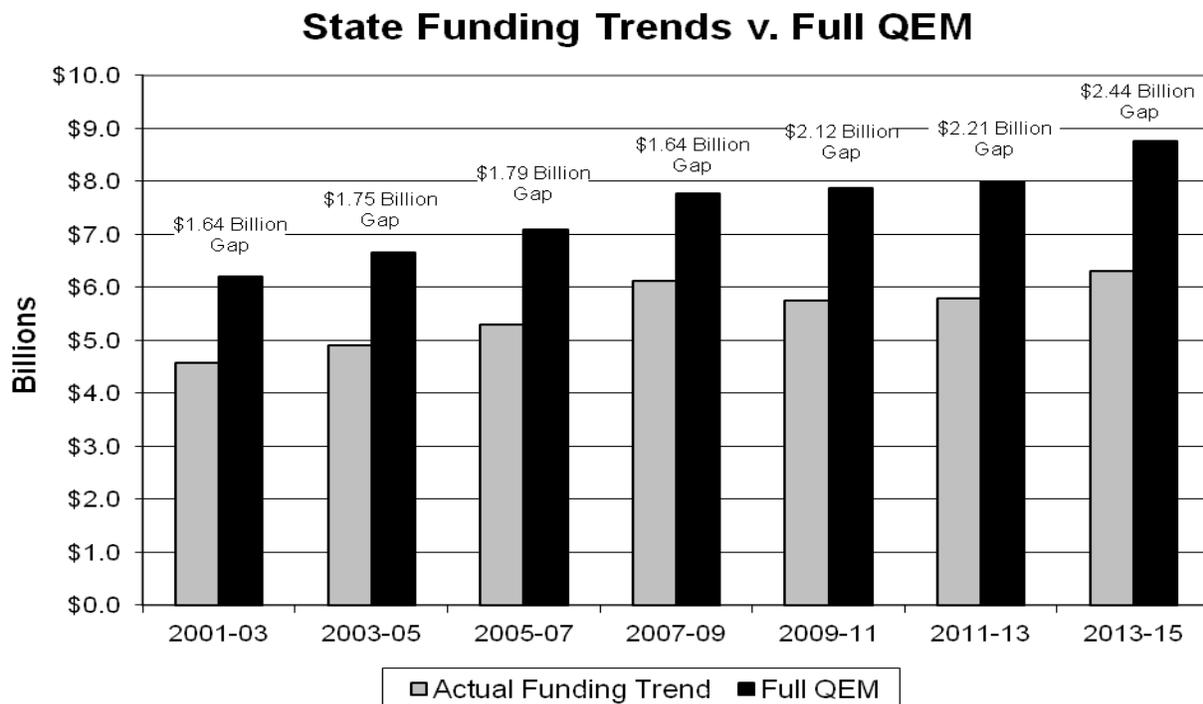
For the 2013-15 biennium, the Quality Education Model estimates that state funding of \$8.75 billion is necessary to reach the state’s educational goals. Given the Current Service Level estimate (the amount required to fund the same level of services provided in the prior biennium), a funding gap of \$2.44 billion will remain if the Legislature adopts the Current Service Level for the 2013-15 biennium, as shown in Exhibit 11.

EXHIBIT 11: STATE PORTION OF K-12 EDUCATION FUNDING

State Portion of K-12 Education Funding (Billions of Dollars)	
	2013-15 Biennium
Current Service Level*	\$6.32
Fully-Funded Quality Education Model	\$8.76
Funding Gap	\$2.44
* Funding required to maintain level of services provided in 2011-13.	

The Oregon Legislature’s consistent failure to appropriate adequate state funding for the public education system means this funding gap has been growing over time. As Exhibit 12 shows, the funding gap narrowed to \$1.64 billion in 2007-09, down from \$1.79 billion in 2005-07. However, the gap widened again in 2009-11 and reached \$2.21 billion in 2011-13. If the legislature funds schools in 2013-15 at the Current Service Level, the gap is projected to increase to \$2.44 billion. Governor Kitzhaber has indicated his intent to reverse the trend of a declining share of the state budget being directed to education, but given weak revenue from Oregon’s income tax, it is unclear how much progress in closing the funding gap can be made in the 2013-15 biennium.

EXHIBIT 12: HISTORY OF OREGON SCHOOL FUNDING GAP



A strategy to eliminate the funding gap must be based on two components: increased levels of funding available to schools and increased efficiency in educational service delivery. For more than a decade, education funding per student provided by the state has not kept up with educational cost increases, which have risen faster than commonly used measures of inflation like the Consumer Price Index. Further, Oregon has experienced substantial growth in its population of students with special needs. Although the share of students meeting state academic standards has continued to increase under these circumstances, the rate of achievement growth is showing signs of slowing. Unless the state can provide additional resources and districts can improve the effectiveness with which they use resources, progress in student achievement is unlikely to continue. Particularly in a period of economic downturn and higher academic standards, Oregon's short-term challenge is to get more out of the education dollars it currently has, and its long-term challenge is to increase the level of resources devoted to education.

Oregon's education reforms have the potential to increase the efficiency of education delivery in Oregon in three primary ways: first, by reducing administrative redundancies through the integration of pre-kindergarten, K-12, and post-secondary programs; second, by improving coordination and alignment of programs across the education continuum, particularly at key student transition points; and third, by creating incentives in funding systems that promote more efficient use of resources by schools and more efficient use of time by students. While all three of these reforms can help Oregon get more from each education dollar, the magnitude of those gains will not be sufficient to get Oregon to its educational goals. Without higher funding, Oregon will almost certainly fail to meet those goals.

THE STATE OF STUDENT ACHIEVEMENT IN OREGON

Oregon has set very high academic goals for its schools and students. Schools are called on to provide a world-class education, while students must demonstrate the essential knowledge and skills needed to fulfill their potential in advanced learning, work, and citizenship. Because the results of state standardized assessments are a commonly used and relatively consistent measure of student performance, the Quality Education Commission utilizes them to understand trends in student achievement over time. The Commission does recognize, however, that standardized assessments are just one measure, and no single measure can adequately reflect all dimensions of student learning and achievement. With renewed attention being paid to graduation rates nationally, and with Oregon's recently-adopted 40-40-20 education goals requiring dramatic increases in graduation rates, more attention to graduation rate trends and the factors that influence student decisions to drop out of school clearly are needed.

As in prior reports, this year's report includes statewide data on student performance on the Oregon Assessment of Knowledge and Skills (OAKS) tests for reading, math, and science. OAKS tests for reading and math are administered in grades 3-8 and high school. Scientific inquiry is assessed in grades 5, 8, and high school.¹ Writing tests were given in grades 4, 7, and high school, but the 4th and 7th grade tests were eliminated in 2008-09 due to budget cuts. This report also presents information about the high school graduation rate, including the recently released cohort graduation rate for the years for which it has been calculated.

¹ Starting in 2010-11, the high school tests were administered to most students in the 11th grade. In prior years, it was administered in the 10th grade. In the graphs presented below, the prior-year scores have been adjusted to be comparable to the 11th grade scores for 2010-11.

EXHIBIT 13: PERCENT MEETING MATH STANDARD

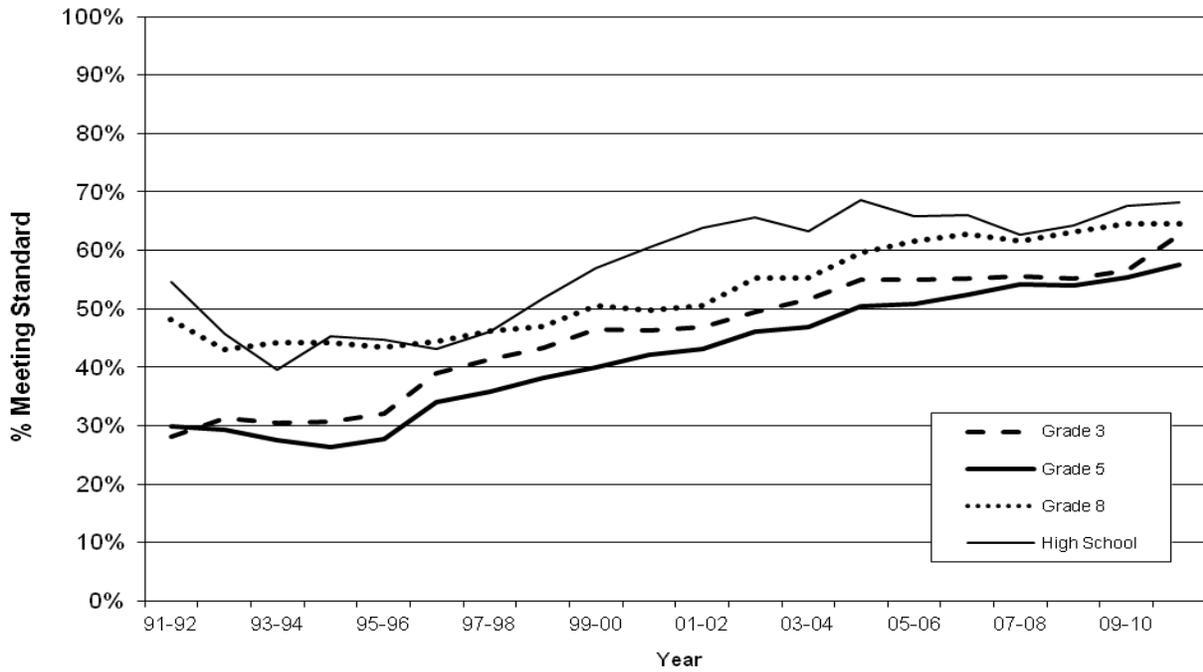


EXHIBIT 14: PERCENT MEETING READING STANDARD

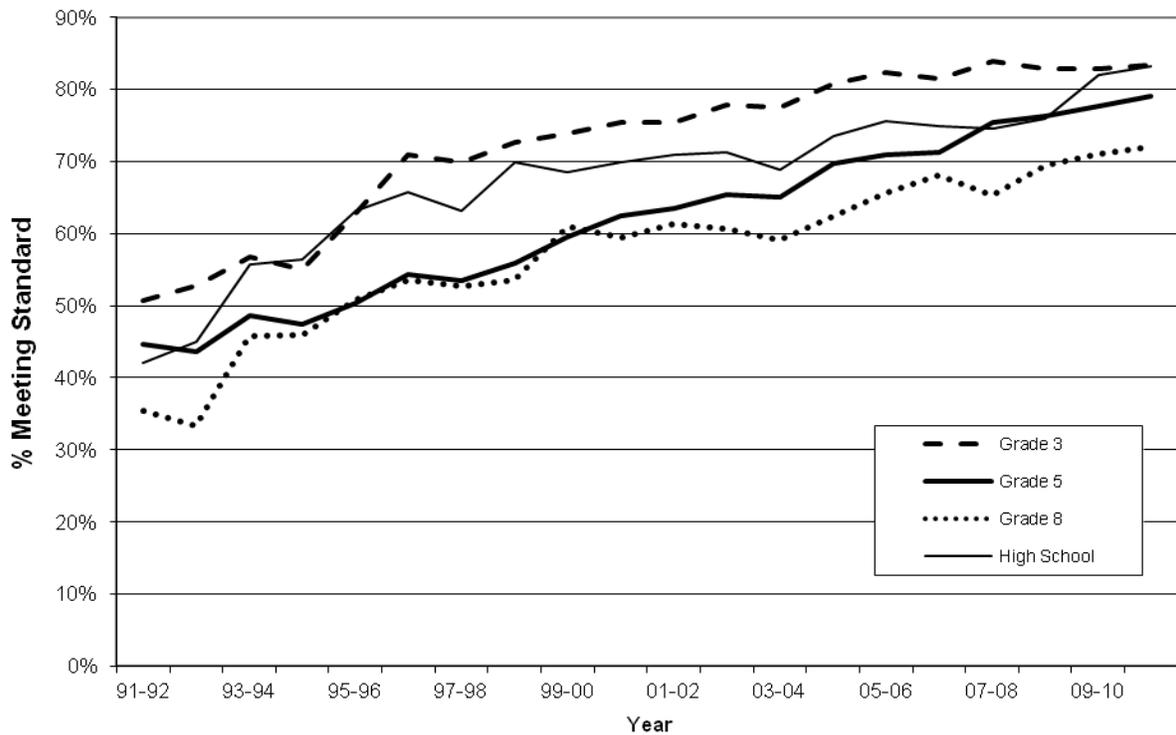


EXHIBIT 15: PERCENT MEETING MATH STANDARD BY SUBGROUP 2010-11

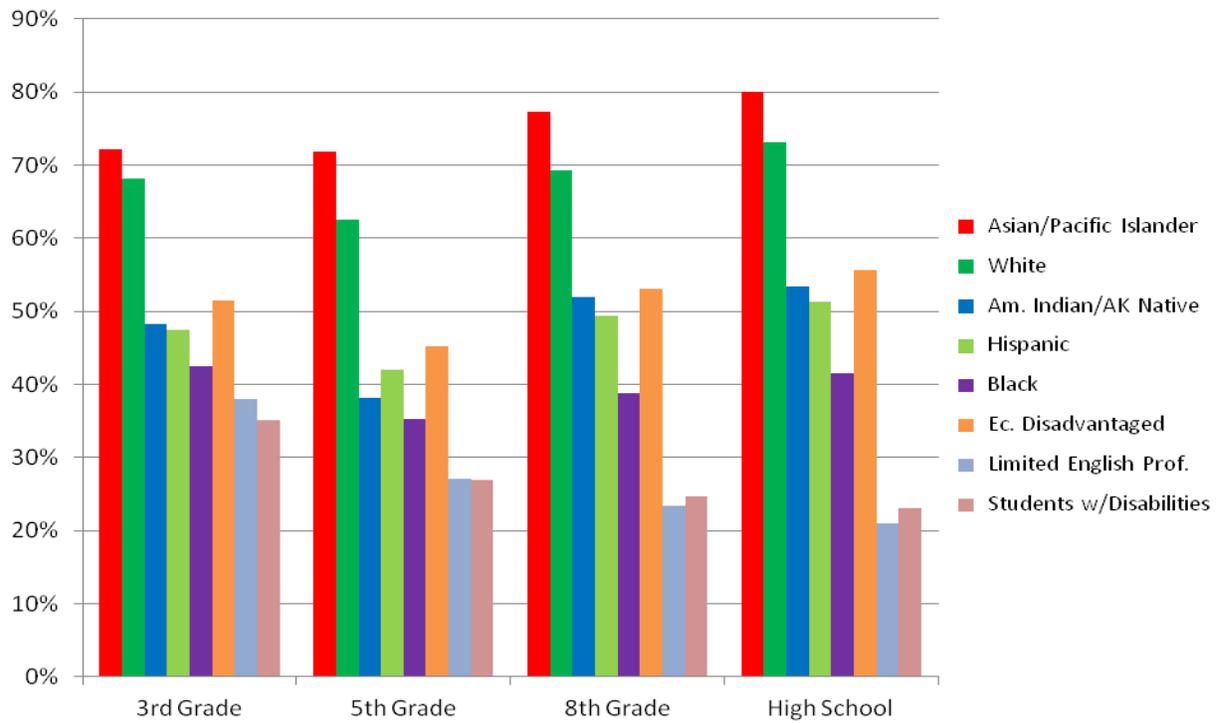


EXHIBIT 16: PERCENT MEETING READING STANDARD BY SUBGROUP 2010-11

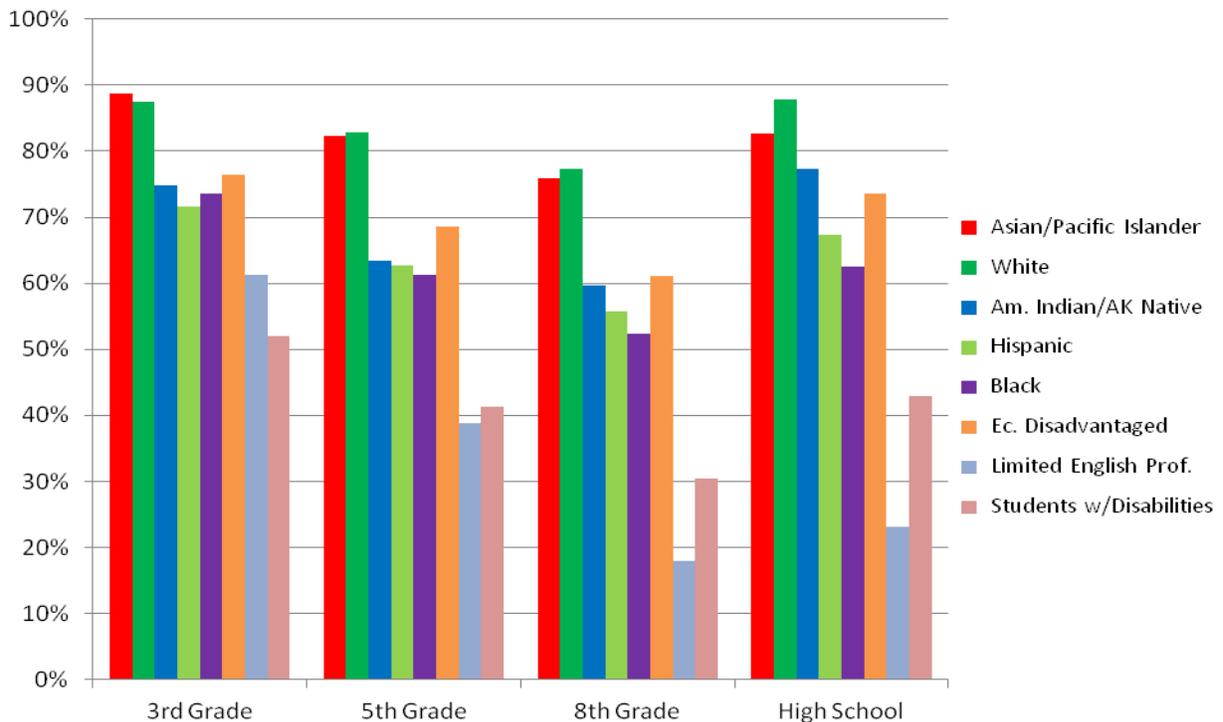


EXHIBIT 17: PERCENT MEETING SCIENCE STANDARD

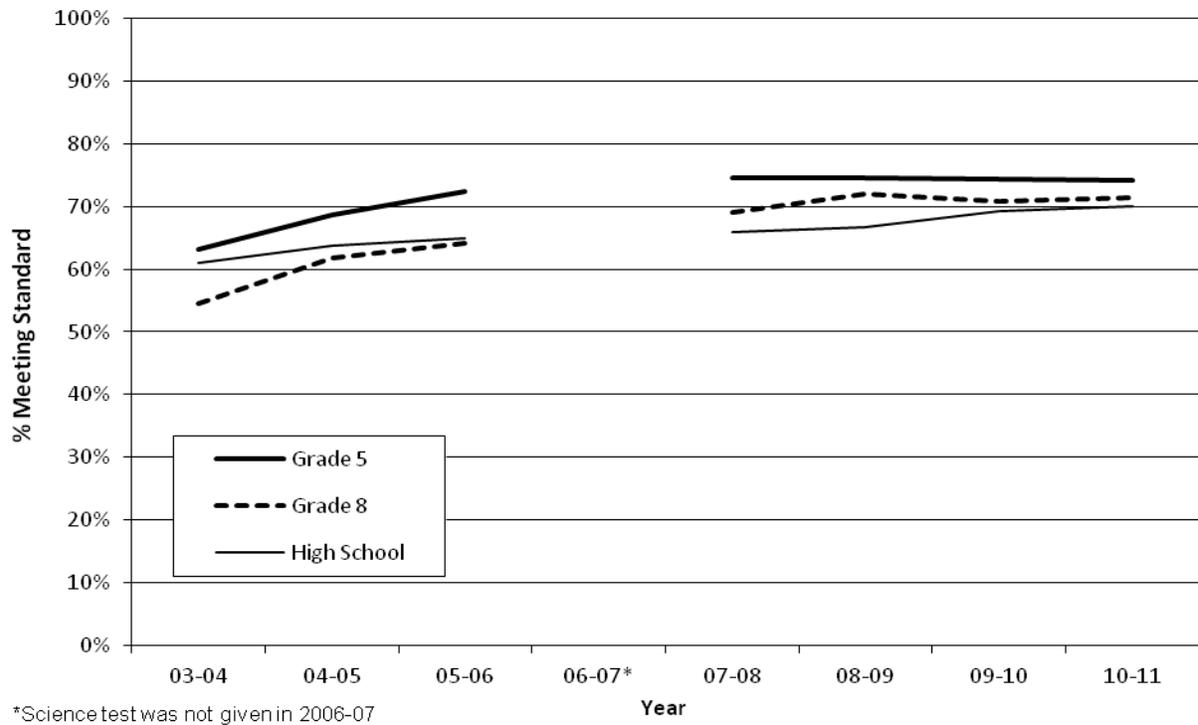
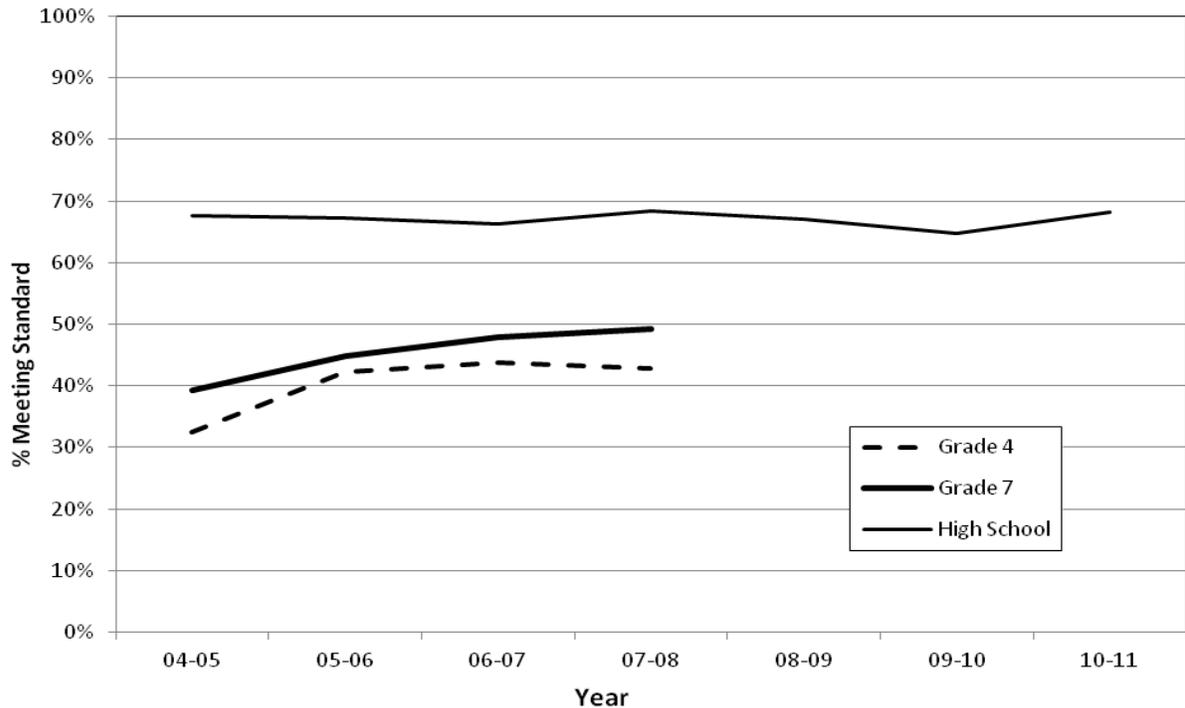


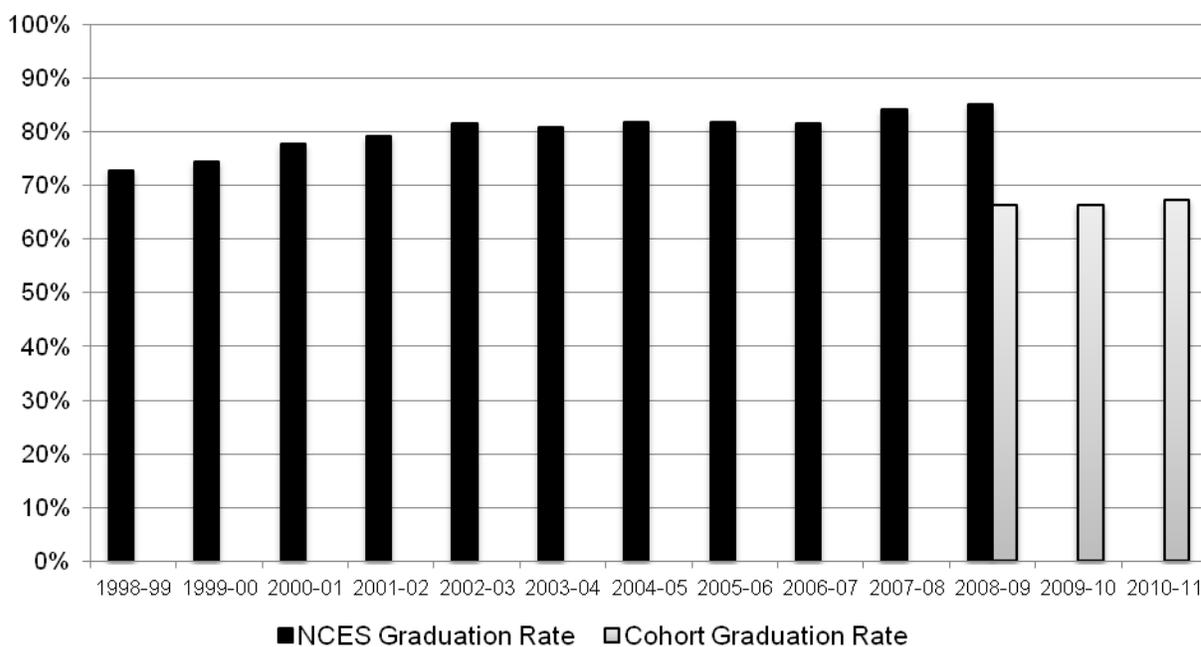
EXHIBIT 18: PERCENT MEETING WRITING STANDARD



Until 2008-09, Oregon only calculated graduation rates using the formula developed by the National Center for Education Statistics (NCES). This formula was approved by the U.S. Department of Education for calculating Adequate Yearly Progress (AYP) under NCLB. As Exhibit 19 illustrates, Oregon’s graduation rate showed steady improvement from 1997-98 until 2002-03. Although improvement leveled off from 2002-03 until 2006-07, the graduation rate increased for the following two school years, reaching a new high of 85% in 2008-09.

In 2008-09 the Oregon Department of Education started calculating a cohort graduation rate, also shown in Exhibit 19. The cohort graduation rate tracks groups of students beginning in the 9th grade to provide a more accurate picture of student outcomes after four years of high school. Students taking longer than four years to graduate, as well as those receiving a modified diploma, a GED, an adult high school diploma, or an alternative certificate are considered non-graduates in this 4-year cohort method. It is important to note that the lower level of the cohort rate (66 percent compared to the NCES rate of 85 percent) reflects primarily the change in the method of calculation, not a dramatic decline in the number of students graduating from high school.

EXHIBIT 19: OREGON GRADUATION RATES



CONCLUSIONS

- Oregon has made strides toward raising student achievement and closing the achievement gap. However, it is undeniable that certain conditions limit Oregon’s ability to fully achieve the state’s ambitious goal of assuring that all students graduate from high school. This goal will not be achieved unless all schools and districts utilize education best practices; accountability structures and incentives are in place to promote efficient resource use; and state, local, and federal funding—the resources needed to sustain improvement—are adequate and stable.

- The proportion of Oregon students who meet or exceed benchmark standards in math and reading continues to increase despite a consistent downward trend in inflation-adjusted resources available to school districts. Assessment results show that math performance in the 3rd and 8th grades decreased for the first time in many years in 2006-07, but rebounded the following year.² The percentage of both 8th and 10th graders meeting the state standard rose in 2008-09. The percent of students meeting the state reading standard for 5th, 8th, and 10th grade increased in 2008-09. Except for a minor decrease in the most recent round of assessments, 3rd grade reading performance has been gradually improving since 2003-04. In general, the elementary grades have exhibited greater and more consistent growth in the proportion of students meeting state benchmarks. Improvement has been less consistent for middle and high school students.
- Predictions about the impact of fully funding the QEM suggest that the goal of getting all students to graduate from high school is within reach. However, without increased funding levels and continued improvement in educational practices, there is a great deal of uncertainty about whether or not this goal will be achieved by the 2025 target date.
- Predictions about future levels of student achievement are based on the assumption that additional funding will be supplied for schools, and that educational practices that are aligned with the Quality Indicators will be adopted by Oregon schools. Because neither increased funding nor best practices alone can be expected to significantly boost student achievement, effecting positive change during a time of economic uncertainty is a daunting task.
- Applying best practices and investing resources in all grades, K-12, will promote student achievement of Oregon's high standards and new diploma requirements. However, as the analysis of resource allocation in this report suggests, adding resources proportionally to all grade levels may not be the best approach. Adding more resources in the grades where schools get the most bang-for-their-buck makes more sense. As the analysis indicates, relatively more resources in the late elementary and middle school grades, at least for math, has the potential to improve high school test scores and, by extension, graduation rates.
- Disparities in student achievement continue to exist for certain segments of the student population; students of minority ethnic and cultural backgrounds, students with disabilities, those who have limited English proficiency, and economically disadvantaged students continue to exhibit lower performance on state assessments and lower graduation rates. As these segments of the student population continue to grow, it is increasingly important to invest in the targeted resources and strategies suggested by the Quality Education Model in an effort to close the achievement gap.

QUALITY EDUCATION MODEL IMPACT ANALYSIS AND STUDENT PERFORMANCE EXPECTATIONS

Without dramatic increases in the productivity of educational inputs (primarily teachers), Oregon's K-12 school system will need additional resources if student performance is to continue improving. In

² In 2006-07 most Oregon students were assessed using a paper and pencil test because the state's computer-based testing system was shut down. Because of the different testing method, the scores for 2006-07 are not comparable to other years.

this section we estimate both the level of resources required to fully fund the Quality Education Model and the impact this level of funding is expected to have on student achievement in the coming years.

QUALITY EDUCATION MODEL ESTIMATES FOR THE 2013-15 BIENNIUM

Prior to the beginning of each legislative session, the Commission updates the Quality Education Model to include the most recent data available. The Commission also reviews the assumptions in the model to ensure that they are consistent with current research. Once the updates are complete, the Commission uses the model to estimate the level of funding required to meet Oregon's educational goals as established in law.

As in past Commission reports, the Cost Panel reviewed the technical aspects of the Quality Education Model this year. In general, the panel's responsibility is to make recommendations for improving the QEM as a tool to support policy decisions regarding school funding in Oregon. In order to do this, the panel updated the model with the most recent data available and refined the cost estimates so they are as accurate as possible. The data used in this report are from the 2010-11 and 2011-12 school years, including expenditures by category, wages and salaries of school personnel, retirement system and health care costs, and class size. The cost Panel also calibrated the model so that it is consistent with current spending in Oregon schools and with the Current Service Level amount estimated by the School Revenue Forecast Committee for the 2013-15 biennium. The Current Service Level scenario represents the starting point for evaluating policy proposals with the model.

The most current data available for use in the model includes the school district and education service district (ESD) audited financial information available through the Database Initiative Project (DBI), enrollment and other student data from the Oregon Department of Education, and economic and price data from the Office of Economic Analysis (Oregon Department of Administrative services).

Exhibit 20 provides estimates of the resources needed to fully fund the Quality Education Model in the 2013-15 biennium. To allow for comparison, it also shows the estimated level of funding required to provide the same level of education services provided in 2011-13 (the Current Service Level). As the table shows, the Fully Funded Quality Education Model for 2013-15 would require \$2.43 billion above the Current Service Level funding amount.

EXHIBIT 20: QUALITY EDUCATION MODEL IMPACT ANALYSIS

Current Service Level Funding Compared to Full Funding of the QEM				
	Current Service Level Scenario	Fully Funded Policy Scenario	Funding Gap	Percent Difference
Estimated District Operating Expenditures for 2013-14	\$5,865,532,829	\$6,961,872,066	\$1,096,339,237	18.7%
Estimated District Operating Expenditures for 2014-15	\$6,067,288,551	\$7,200,846,852	\$1,133,558,301	18.7%
2013-15 Biennium Total	\$11,932,821,380	\$14,162,718,918	\$2,229,897,538	18.7%
Plus: 2013-15 ESD Expenditures	\$845,981,143	\$995,223,815	\$149,242,671	17.6%
Plus: High-Cost Disabilities Fund	\$36,000,000	\$96,000,000	\$60,000,000	166.7%
Equals: Total 2013-15 Funding Requirement	\$12,814,802,523	\$15,253,942,733	\$2,439,140,209	19.0%
Less: Local Revenue not in Formula*	\$883,089,131	\$883,089,131	\$0	0.0%
Less: Federal Revenue To School Districts and ESDs	\$1,489,611,221	\$1,489,611,221	\$0	0.0%
Less: Food Service Enterprise Revenue	\$106,822,049	\$106,822,049	\$0	0.0%
Less: PERS side Account Earnings	\$444,771,344	\$444,771,344	\$0	0.0%
Equals: Total Formula Funding Requirement	\$9,890,508,778	\$12,329,648,987	\$2,439,140,209	24.7%
Less: Property Taxes and other Local Resources	\$3,574,677,506	\$3,574,677,506	\$0	0.0%
Equals: 2013-15 State Funding Requirement	\$6,315,831,272	\$8,754,971,481	\$2,439,140,209	38.6%

* Local option taxes, fees, and donations.

STUDENT PERFORMANCE EXPECTATIONS: CURRENT SERVICE LEVEL AND FULLY FUNDED SCENARIOS

The Quality Education Model allows policymakers to examine the relationships among education policy, finances, and expected student performance. The following graphs show estimates of student achievement outcomes, measured as the percentage of students meeting or exceeding the state's benchmark standards in reading and mathematics, for both the Current Service Level of funding and the fully-funded Quality Education Model. The continued improvement in student achievement even at the Current Service Level of funding is based on the assumption that the improved productivity that we have observed in Oregon schools over the past two decades will continue, although at a diminished rate. The more rapid rate of improvement forecast at the "full QEM" level of funding is based on the relationship between funding and student performance that we observe across Oregon school districts and on the assumption that the higher level of funding of the QEM provides the wherewithal to school districts to more rapidly implement best practices.

EXHIBIT 21: 3RD GRADE READING ACHIEVEMENT FORECAST

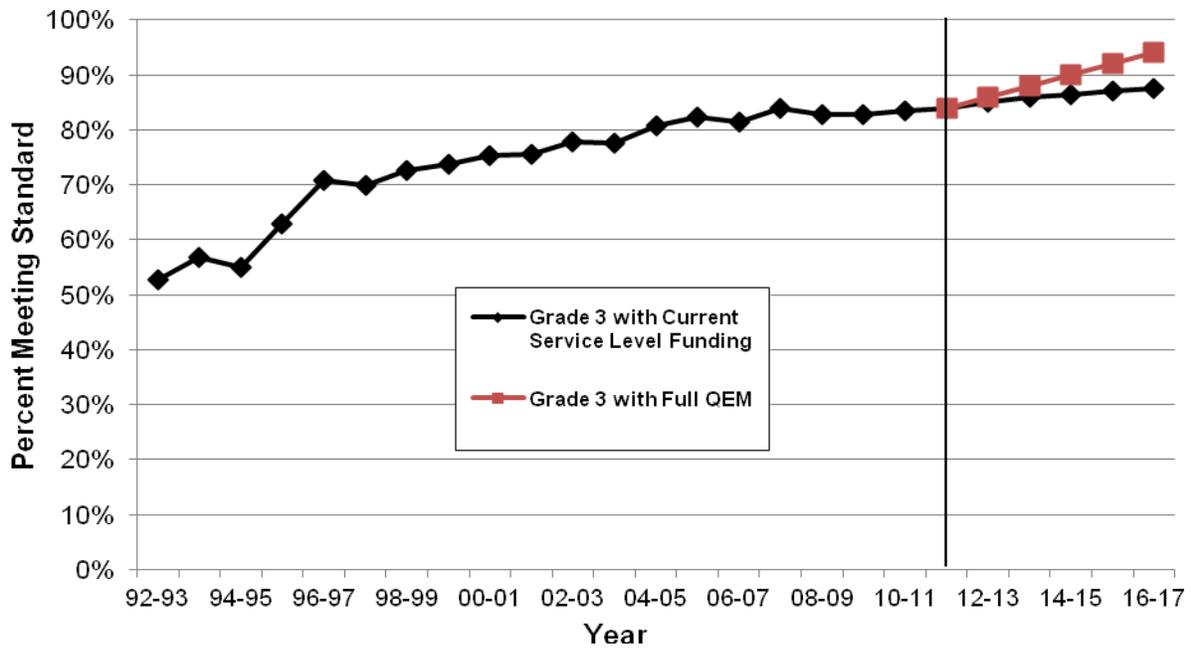


EXHIBIT 22: 5TH GRADE READING ACHIEVEMENT FORECAST

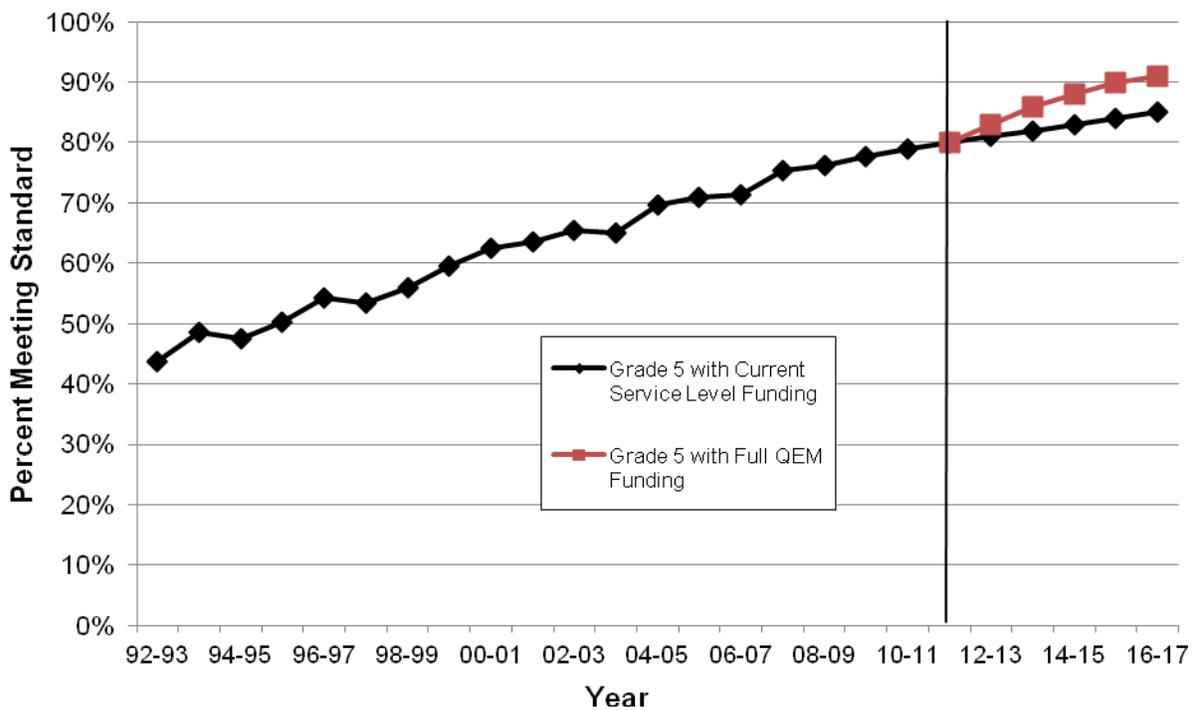


EXHIBIT 23: 8TH GRADE READING ACHIEVEMENT FORECAST

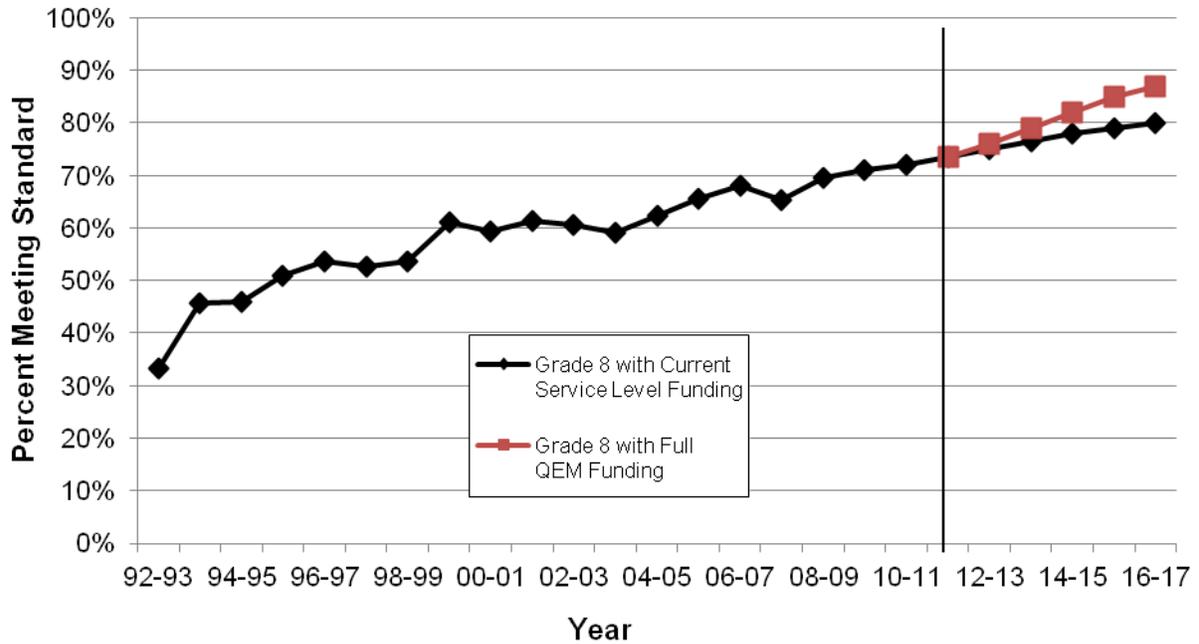
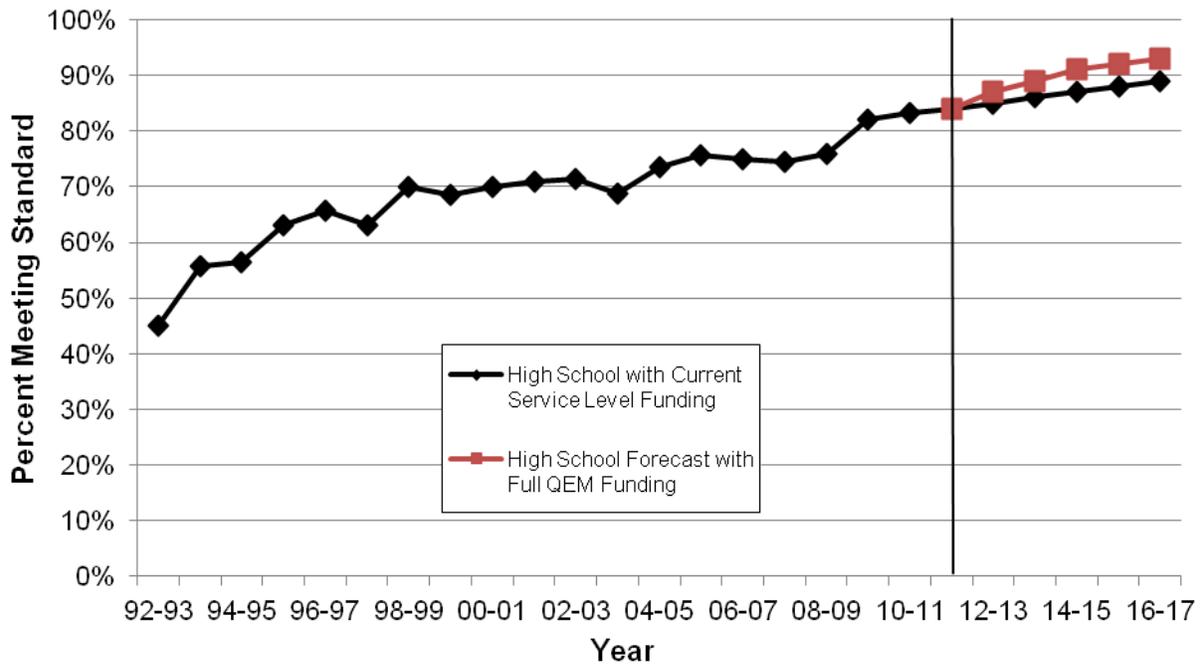


EXHIBIT 24: HIGH SCHOOL READING ACHIEVEMENT FORECAST



Starting in 2010-11, the high school test was given in the 11th grade rather than the 10th

EXHIBIT 25: 3RD GRADE MATH ACHIEVEMENT FORECAST

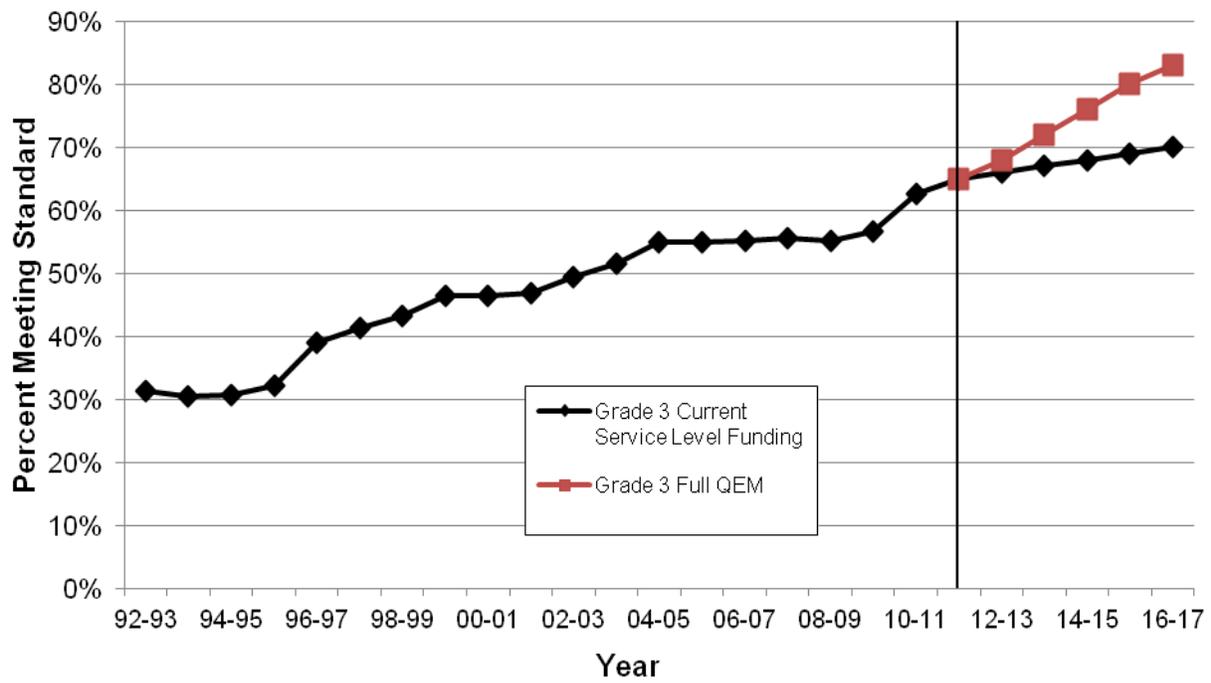


EXHIBIT 26: 5TH GRADE MATH ACHIEVEMENT FORECAST

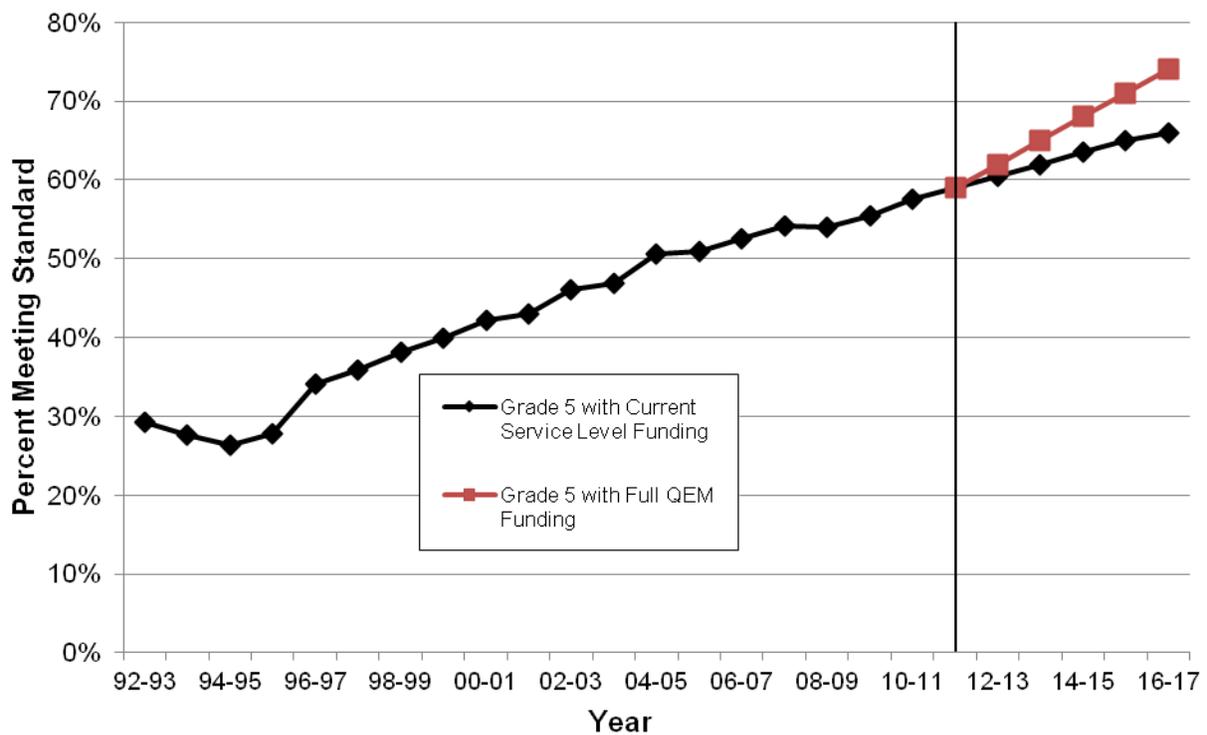


EXHIBIT 27: 8TH GRADE MATH ACHIEVEMENT FORECAST

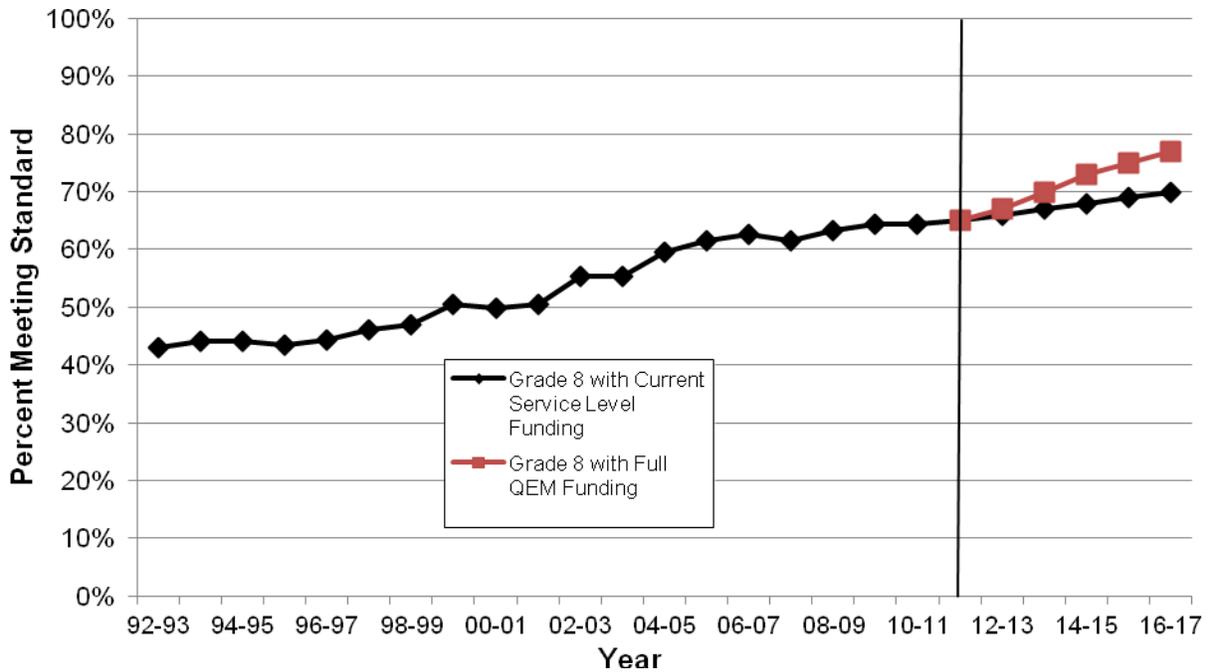
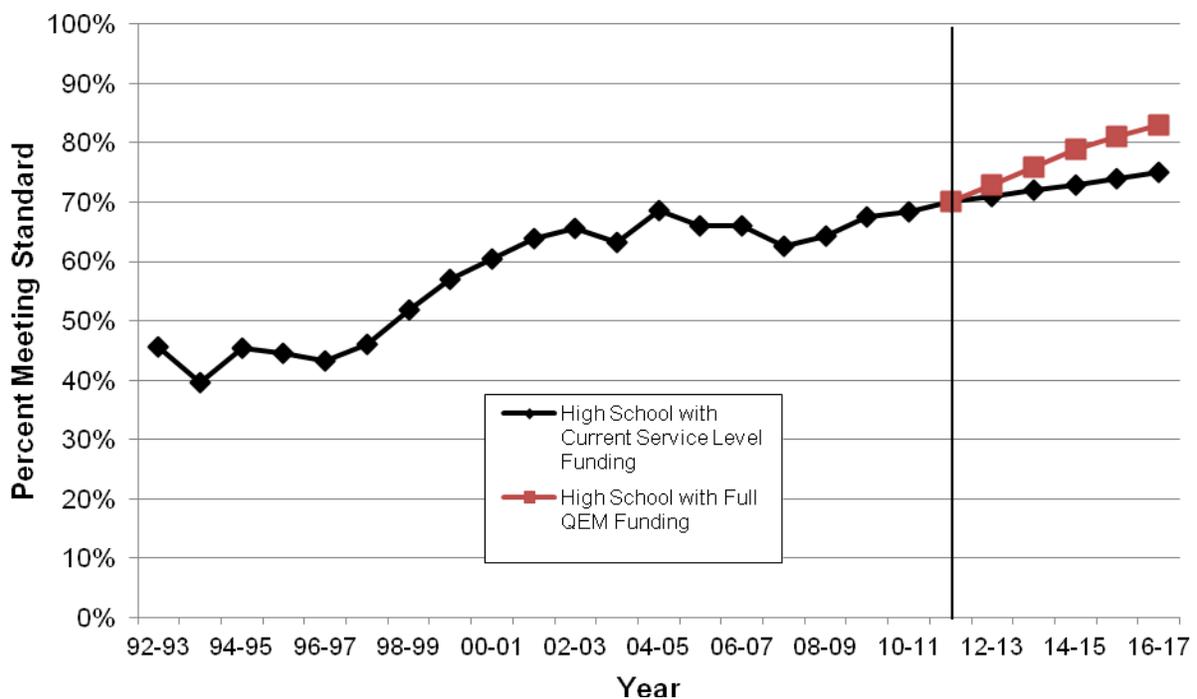


EXHIBIT 28: HIGH SCHOOL MATH ACHIEVEMENT FORECAST



ALTERNATIVE STRATEGIES FOR IMPLEMENTING THE QUALITY EDUCATION MODEL

The Quality Education Model is Oregon's primary tool for determining the resources required to meet the state's educational goals. The 2012 Quality Education Model estimates the level of resources that will be needed to prepare all students to meet the state's new graduation standards set out in the Oregon Diploma and to put Oregon on the path to meet the 40-40-20 goal that is part of the governor's current education reforms.

Given that current funding falls considerably short of the level the Commission estimates is needed to meet Oregon's academic goals, the Commission's focus has been on how to best use current resources.

Focusing on practices that will have the greatest positive impact on student achievement in the short-term and developing a long-term strategy for increasing the funding levels for Oregon schools are necessary for advancing education in Oregon.

ALTERNATIVE 1: INVEST IN STRATEGIES WITH THE LARGEST IMPACT

In any organization or system, improved results depend on using best practices, and using those with the greatest impact first. One alternative to full implementation of the 2012 Quality Education Model is to invest limited resources in strategies that have the most potential to help move Oregon students toward the state's achievement and graduation standards. This proposal suggests the implementation of practices which are most likely to assist the greatest number of students in achieving the state's educational goals and provides suggestions for how to use school resources most efficiently and effectively. Identifying and adopting practices that have the greatest impact on student achievement becomes increasingly important in the type of funding environment that Oregon now finds itself: one where state revenue is expected to grow relatively slowly for an extended period of time. In such an environment, a more efficient use of resources is critical.

In 2010, the Commission proposed strategic goals for partial implementation of the Model that addressed the entire K-12 system. The recommendations included improving school teacher effectiveness through professional development, developing strong district frameworks for the articulation of academic content across grades, better alignment of coursework to state assessments, and providing targeted interventions for Oregon students most at-risk of not meeting academic standards.

Again this year, the Commission recognizes that helping Oregon students meet the state's rigorous academic standards and graduation requirements will require investing in strategies that impact students at all points on the K-12 continuum. The Commission recommends that Oregon's school districts continue with their efforts to implement the 2010 recommendations. In addition, based on the work of the Best Practices and Cost Panels in 2012, the Commission encourages school districts to pursue the following strategies:

- **Invest in effective teacher collaboration time.** Evaluation of practices of selected Oregon schools by the Commission's Best Practices Panel suggest that added teacher collaboration time is effective in raising student achievement if school staff are supportive and engaged in the activity and if it is implemented well. Staff-initiated collaboration appears to be the most effective, even if it is done informally.

- **Promote the use of high-quality formative assessments to improve instruction.** The Best Practices Panel also found that the data generated by formative assessments can be useful in improving instruction if teachers take the time to evaluate it with their colleagues and report what they find regularly to students and parents.
- **Evaluate the allocation of resources within districts to get the most impact from district resources.** Analysis by the Commission's Cost Panel suggests that more resources in the late elementary and middle grades (4 through 8) can generate improvements in student achievement that carry over through high school, particularly in mathematics.

ALTERNATIVE 2: TEN-YEAR PHASE-IN OF THE QUALITY EDUCATION MODEL

Another alternative to immediate introduction of all components of the Quality Education Model is to gradually phase in its provisions and funding requirements over a longer period of time. Spreading these changes out over ten years (five biennia) is particularly advantageous in the current economic climate in Oregon, as it allows the Legislature time to develop funding strategies that can provide stable resources for education. Additionally, a more gradual influx of additional funding and introduction of new requirements and practices will give school districts the time they might need to make adjustments and to learn how to most effectively and efficiently utilize new resources. Governor Kitzhaber has proposed that Oregon state agencies develop 10-year budget plans as a way to promote a longer-term perspective on how to best provide public services. For the education sector, the Quality Education Commission's long-standing recommendation for a 10-year phase-in of full QEM funding is consistent with the governor's longer-term budgeting strategy and is one example of how the mechanics of such a strategy might work.

Exhibit 29 illustrates how the funding gap could be closed gradually through a multi-biennium approach. In this way, full QEM funding—taking into account cost increases over time—could be achieved by the 2021-23 biennium. This type of phase-in approach represents a realistic option for moving forward with Oregon's education goals and the ideals of the Quality Education Model without expecting drastic funding changes to occur immediately. It provides targets for each biennium when revenues grow slowly and a basis for discipline when revenues grow quickly.

Additionally, the phase-in approach provides opportunities for school districts to learn from successes and failures as they integrate additional resources, best practices, and the new graduation standards. As such, this alternative to full implementation of the QEM may actually help to foster efficient resource use at the school and district levels.

EXHIBIT 29: RECOMMENDED 10-YEAR PHASE-IN OF FULL QEM FUNDING

SSF Required to Fully Phase-in QEM by 2021-23				
Billions of Dollars				
Biennium	Current Service Level (CSL)	Percent of Gap to Close	Required Funding Above CSL	Total State School Fund Required
2013-15	\$6.316	10%	\$0.579	\$6.895
2015-17		15%	\$0.869	\$7.764
2017-19		20%	\$1.159	\$8.923
2019-21		25%	\$1.448	\$10.371
2021-23		30%	\$1.738	\$12.110

RECOMMENDATIONS

If current funding trends are allowed to continue, Oregon will not be able to meet its 40-40-20 education goals. The Quality Education Commission’s primary recommendation is that the state adopt a 10-year funding strategy that will phase-in the full QEM funding level by the 2021-23 biennium. The schedule of State School Fund requirements shown in Exhibit 29 above is an example of such a phase-in strategy.

Based on the findings of the Best Practices and Cost Panels, the Commission also makes the following recommendations:

- Schools should invest in effective teacher collaboration time. The most effective collaboration time is initiated and supported by teachers and involves setting specific goals for improving student achievement.
- Districts should promote the use of high-quality formative assessments to improve instruction. Such assessments are most effective when teachers share the results with students and parents frequently.
- Districts should take a fresh look at how they allocate resources across schools, and across grades within schools. To get the most from their resources, districts need to allocate resources where they have the most positive impact on student achievement.

In addition, the Commission continues to make the following recommendations from prior Commission reports:

- Provide more time for new teacher induction and job-embedded professional development.
- Provide adequate resources and staff so that schools can offer Algebra courses for high school credit in the 7th or 8th grade. Early introduction to Algebra concepts promotes higher achievement in high school.

- Include adequate classroom spaces, smaller class sizes, and early identification of struggling students, and additional instruction time with licensed math teachers.
- Allocate time and resources to districts to develop frameworks for the articulation of math programs for 4th grade through high school.
- Develop a strategic focus on practices that build a solid academic foundation in the early grades.
- Align the timing of student course-taking with the timing of state assessments.
- Invest in strategies and allocate additional resources where they will have the greatest impact on student performance. Time and leadership are priority investment targets.

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Appendix

BEST PRACTICES PANEL

ON-LINE SURVEY ROUND I AND ROUND II REPORT TO THE COMMISSION

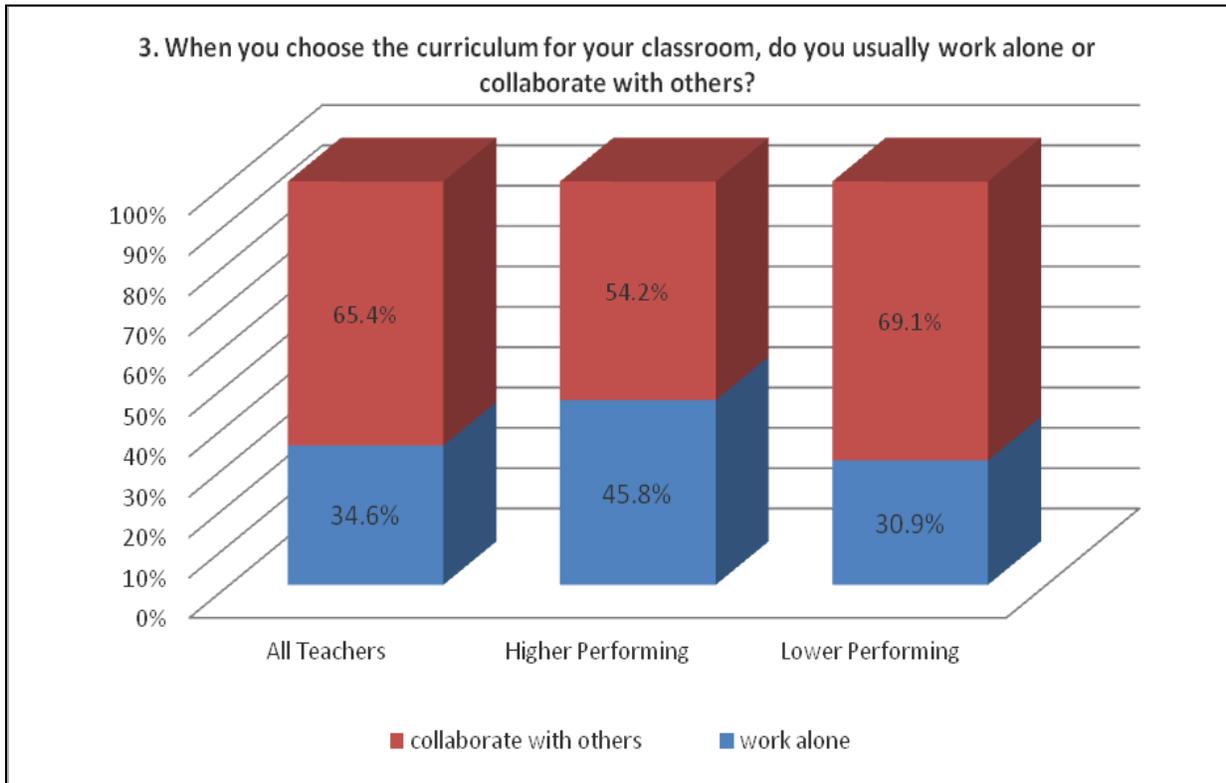
RESULTS AND FINDINGS:

Questions one and two of the survey asked teachers to identify their school and teaching responsibility. The results and findings from questions three through seven follow and include data from all three groups of teachers administered the surveys: 1) teachers from schools performing higher than predicted; 2) teachers from schools performing lower than predicted; and 3) ALL active classroom teachers in the State. The comparisons made among responses from all three groups of teachers enabled the QEC to identify the specific survey questions about formative assessment and professional collaboration that appear to have the most impact on high performing school teachers' capacity to effect positive academic change for their students.

Caveat: Although the following findings are consistent with the Panel's current educational best practices research, it should be noted that limitations of the survey process included a low matched pair response rate and a reliance on teacher self-reported data. A deeper and more rigorous investigation is recommended to determine the validity of the results presented in this document.

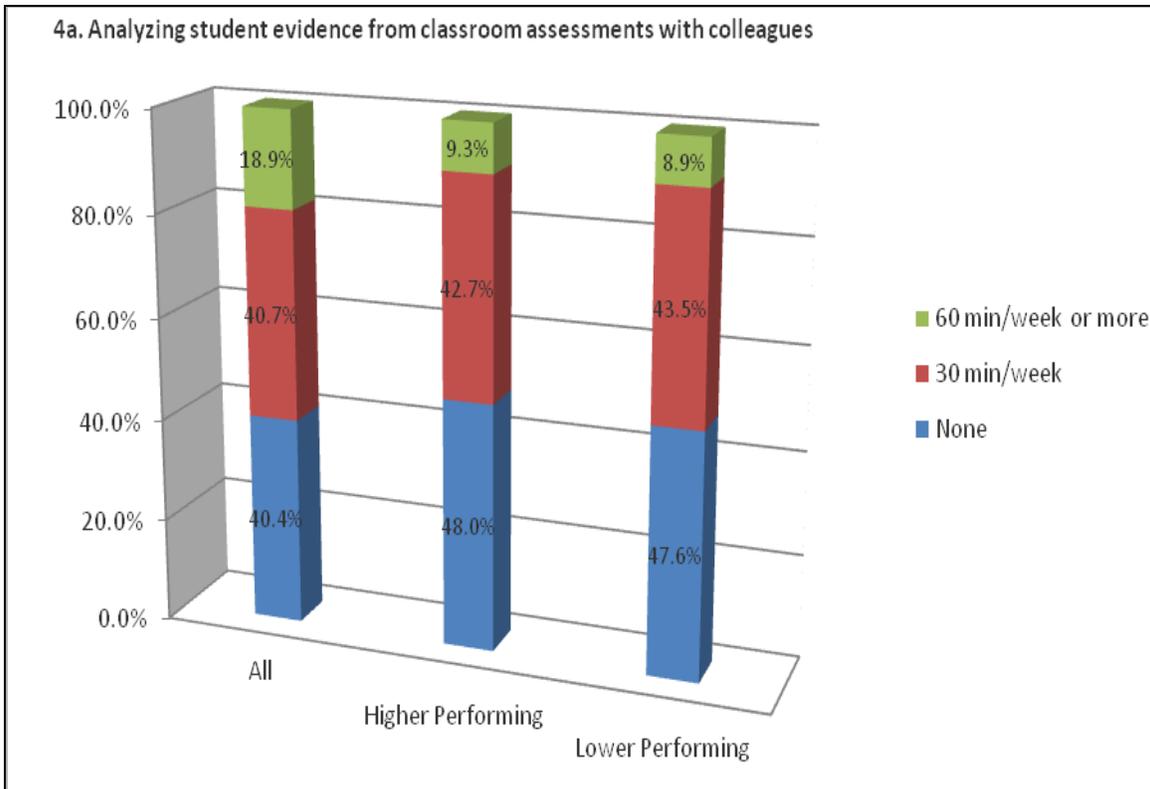
Survey Question #3:

3. Finding: 65.4% of statewide respondents reported they collaborate with others on curriculum choices. Teachers from schools performing lower than predicted report they collaborate on curriculum more often than schools performing higher than predicted:

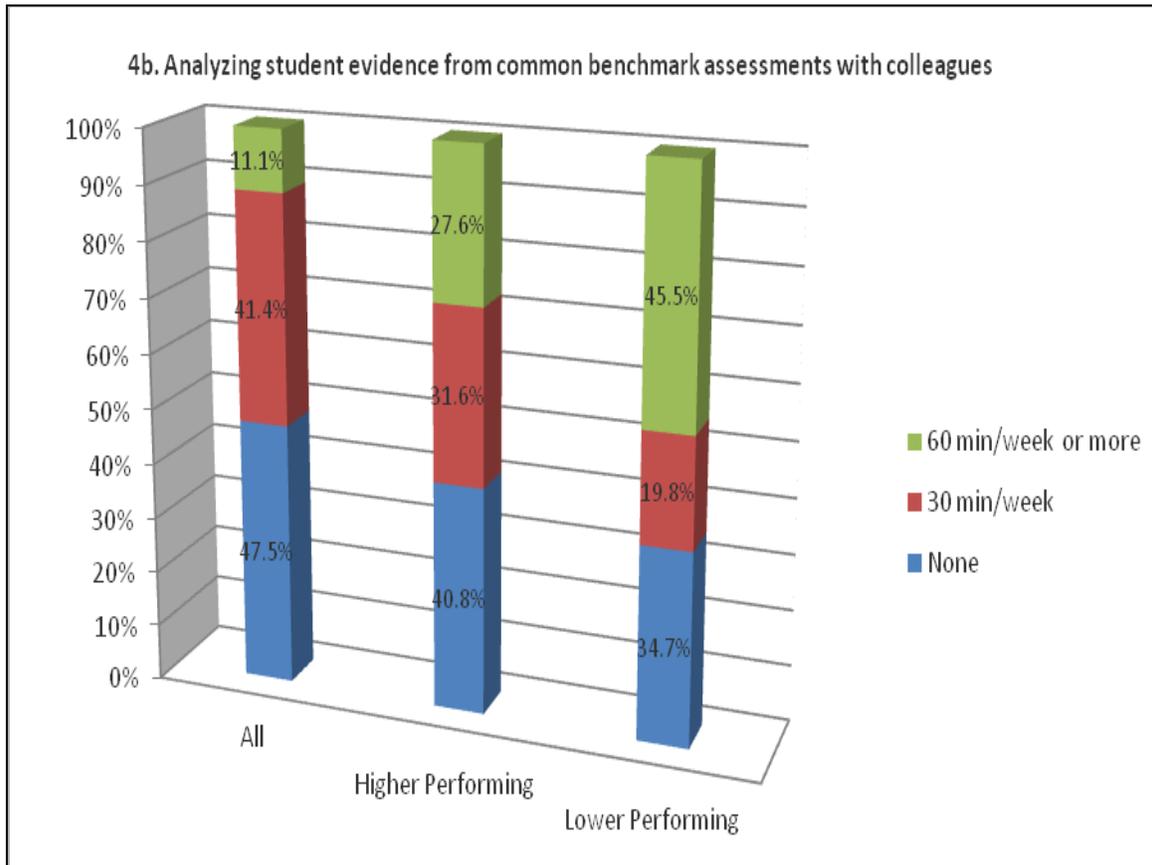


Question #4:

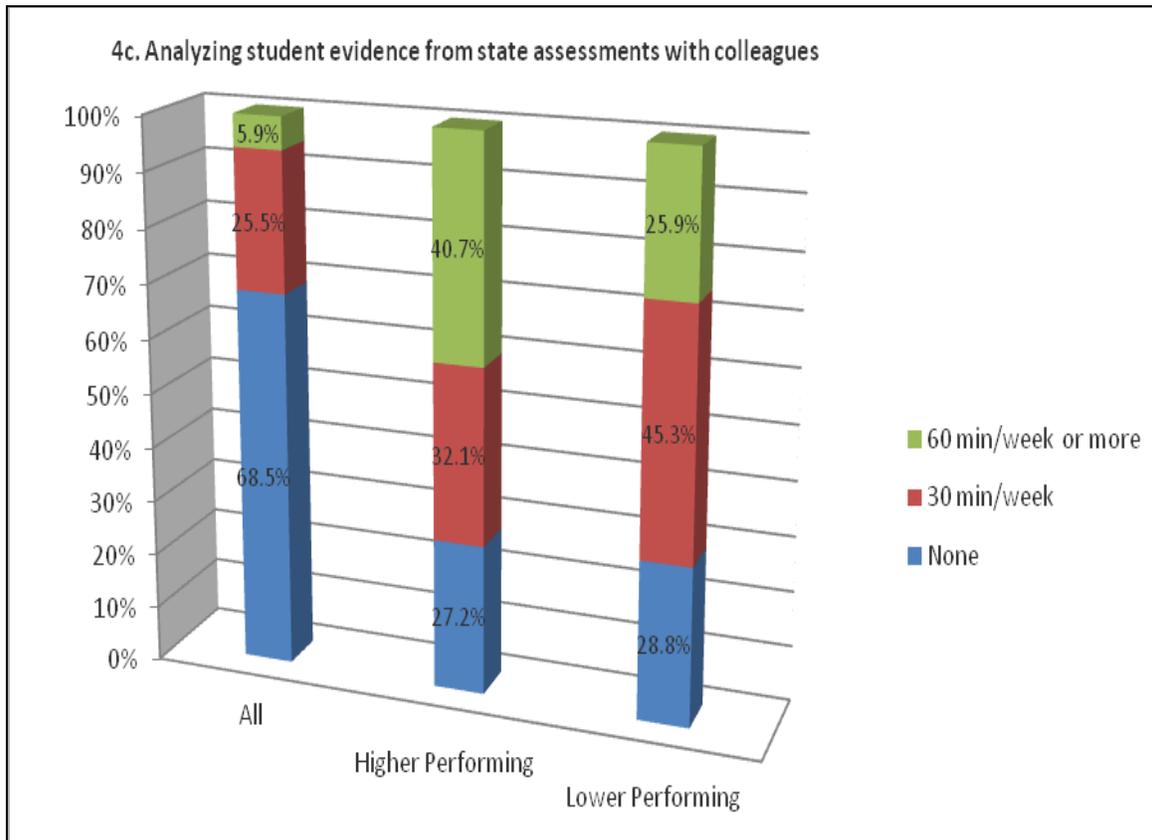
4.a Finding: 59.6% of statewide respondents reported they analyze classroom assessments with colleagues, with 30 minutes per week being the most frequently reported amount of time spent in this activity. Schools performing lower than predicted reported they collaborate slightly more than schools performing higher than predicted:



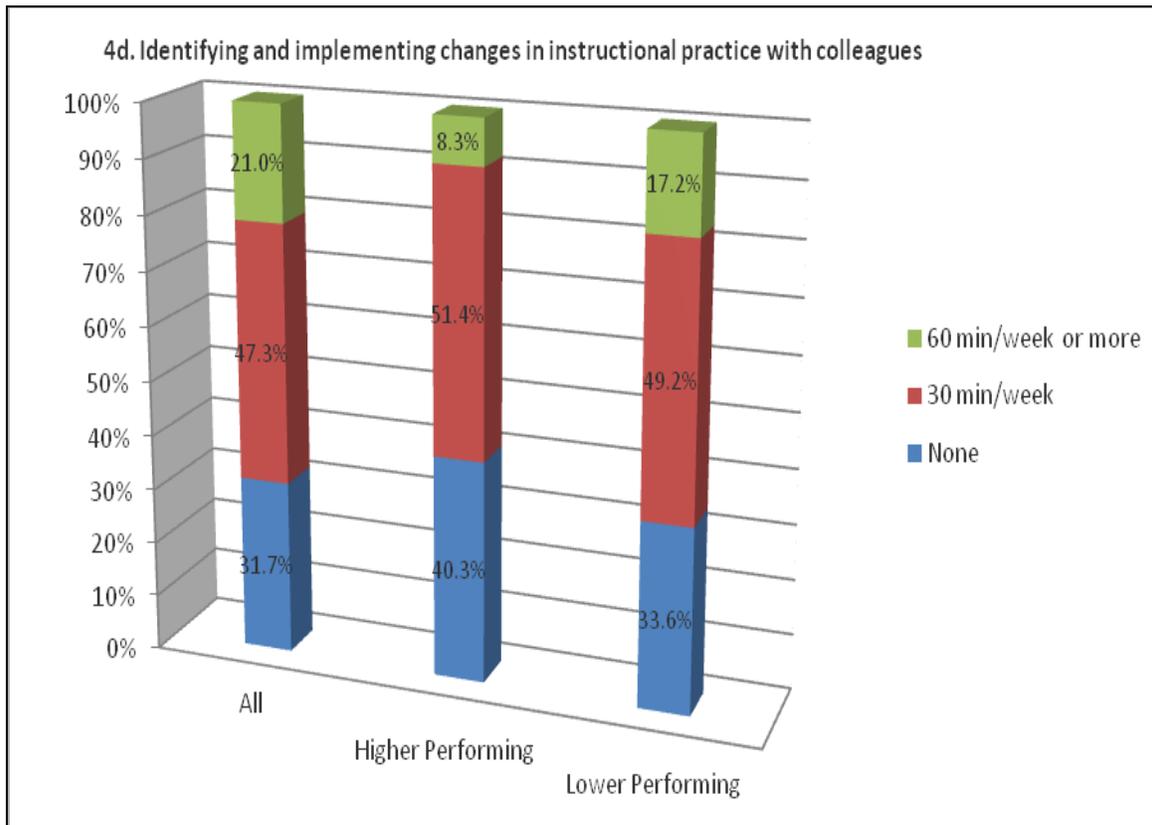
4.b Finding: 52.5% of statewide respondents reported they analyze student evidence from common benchmark assessments with colleagues with 30 minutes per week being the most common amount of time spent in this activity. The schools performing higher than predicted spent less time in this activity:



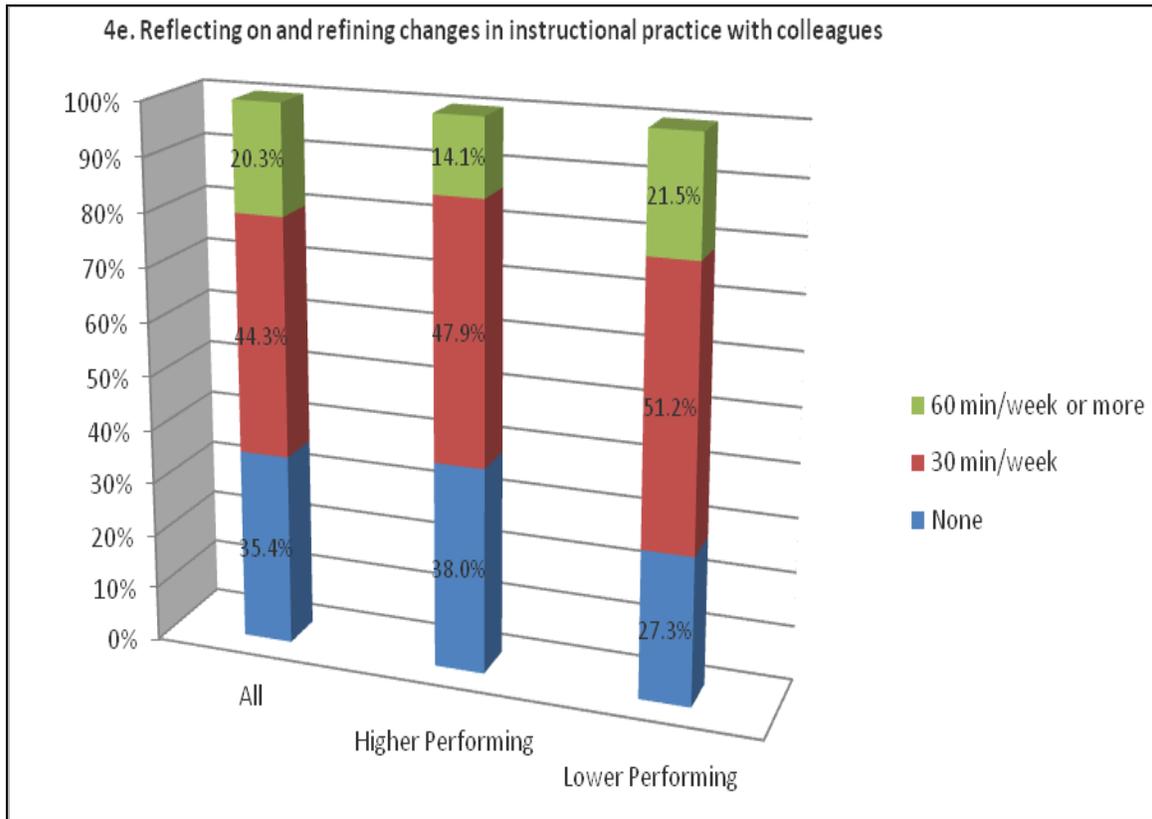
4.c Finding: 31.4% of statewide respondents report they analyze evidence from State assessments with colleagues 30 minutes or more per week. The teachers in schools performing higher than predicted spent more time in this activity than those in lower performing schools with 14.8% more spending 60+ minutes a week in this activity:



4.d Finding: 68.3% of statewide respondents report they identify and implement changes in instructional practice with colleagues. Teachers in schools performing higher than predicted reported spending less time in this activity than teachers in lower performing schools:

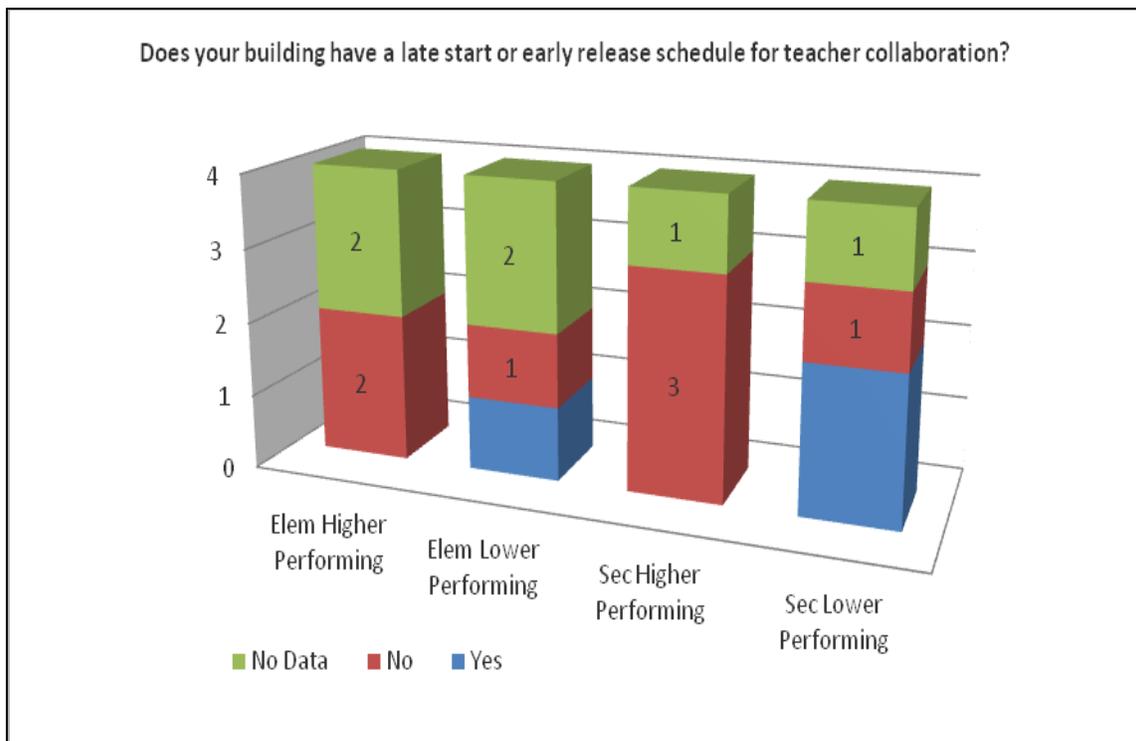


4.e Finding: 64.6% of statewide respondents report they reflect on and refine changes in instructional practice with colleagues. Teachers in schools performing higher than predicted reported spending less time in this activity than teachers in school performing lower than predicted:



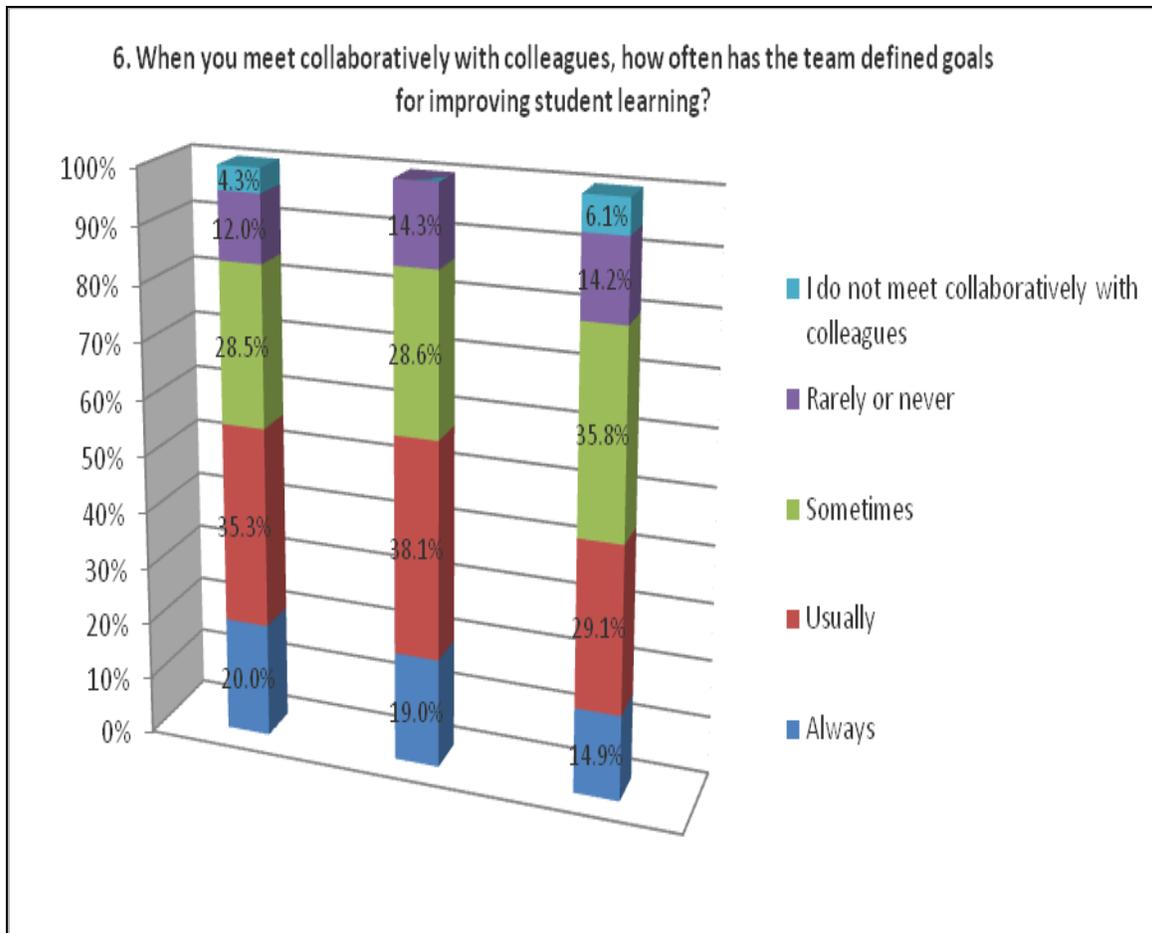
Question #5:

5.a Finding: 30% of respondents statewide report they have a late start or early release schedule for teacher collaboration. The schools performing higher than predicted were less likely to have a late start or early release for collaboration than lower performing schools (note: Interviews revealed that one higher performing HS and an ES have a late start but neither reported this in the survey and it is not reflected in graph 5.a)



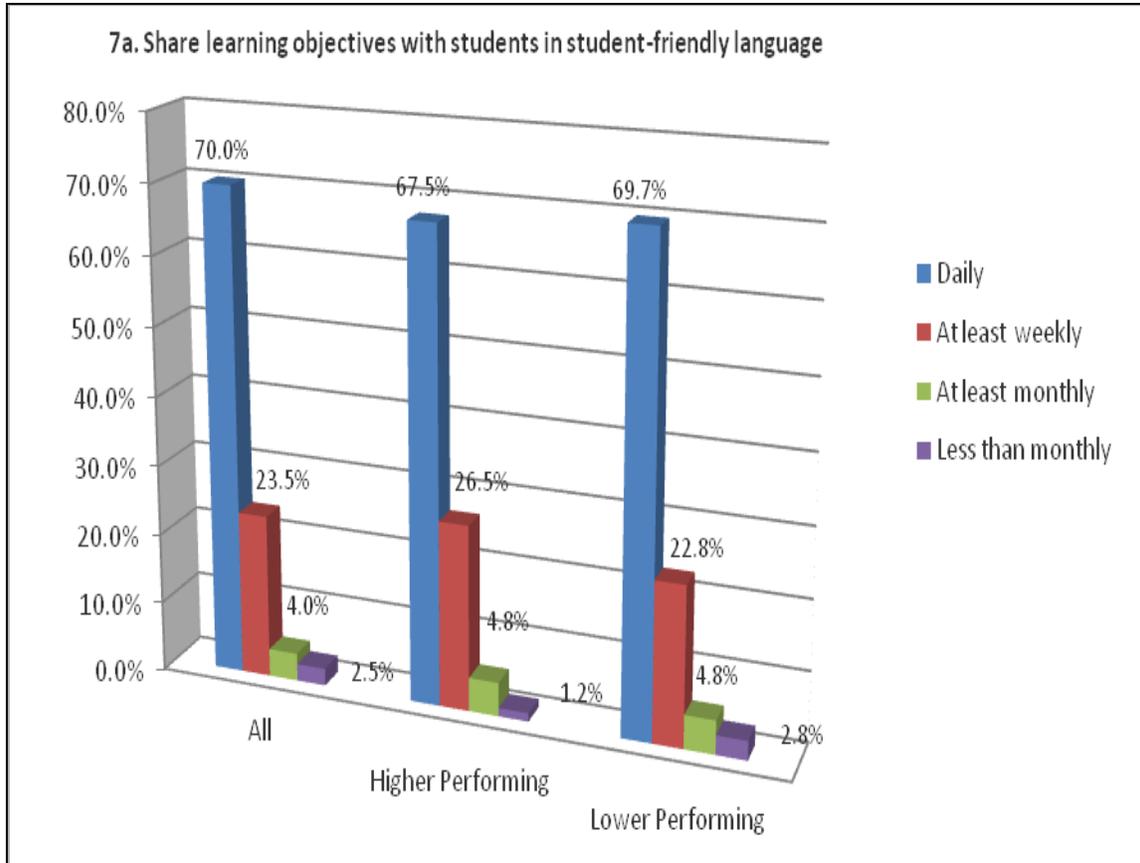
Question #6:

6.a Finding: 55.3% of statewide respondents report they always define goals for improving student learning when they meet collaboratively with colleagues. Schools performing higher than predicted report a higher rate of setting goals for improving student achievement “always” or “usually” than lower performing schools:

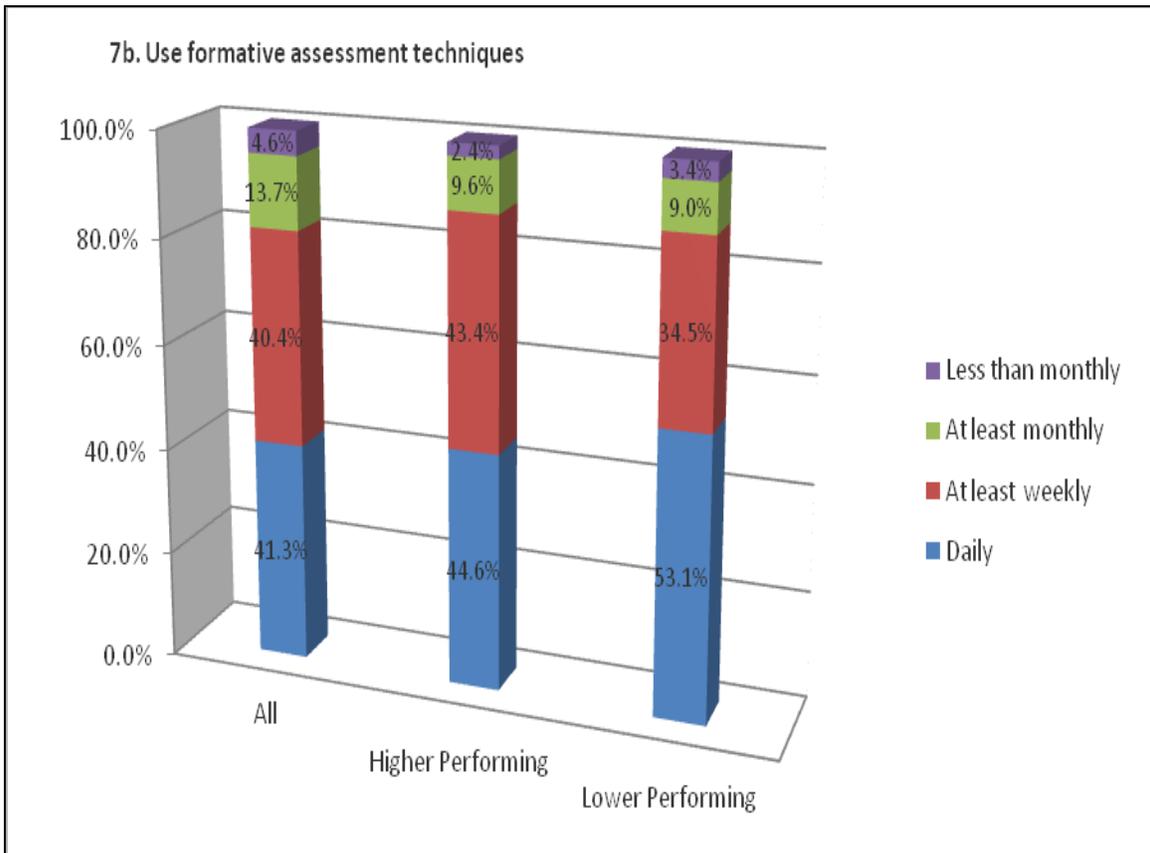


Question #7:

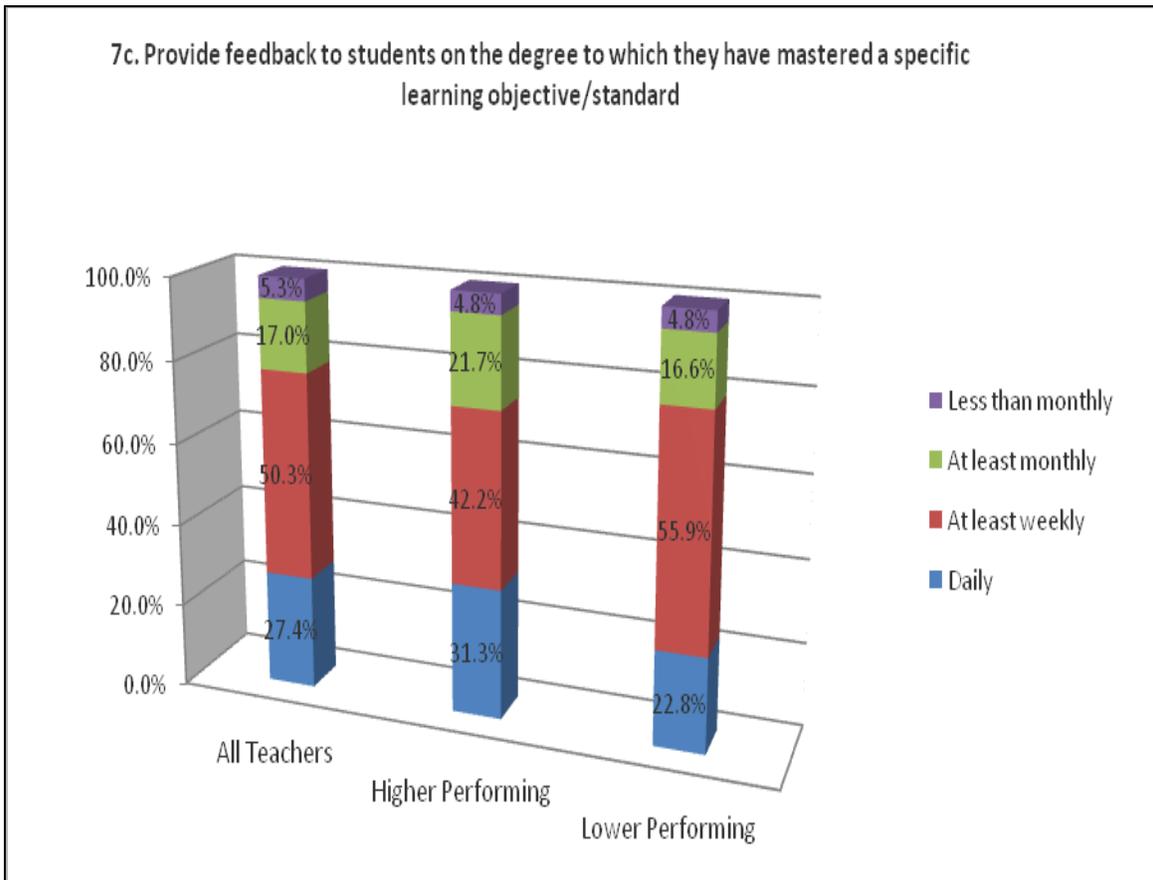
7.a Finding: 97.5% of statewide respondents report they share learning objectives with students in student-friendly language at least monthly. Schools performing higher than predicted have a higher percentage of teachers reporting that they engage in this activity at least weekly than teachers from lower performing schools:



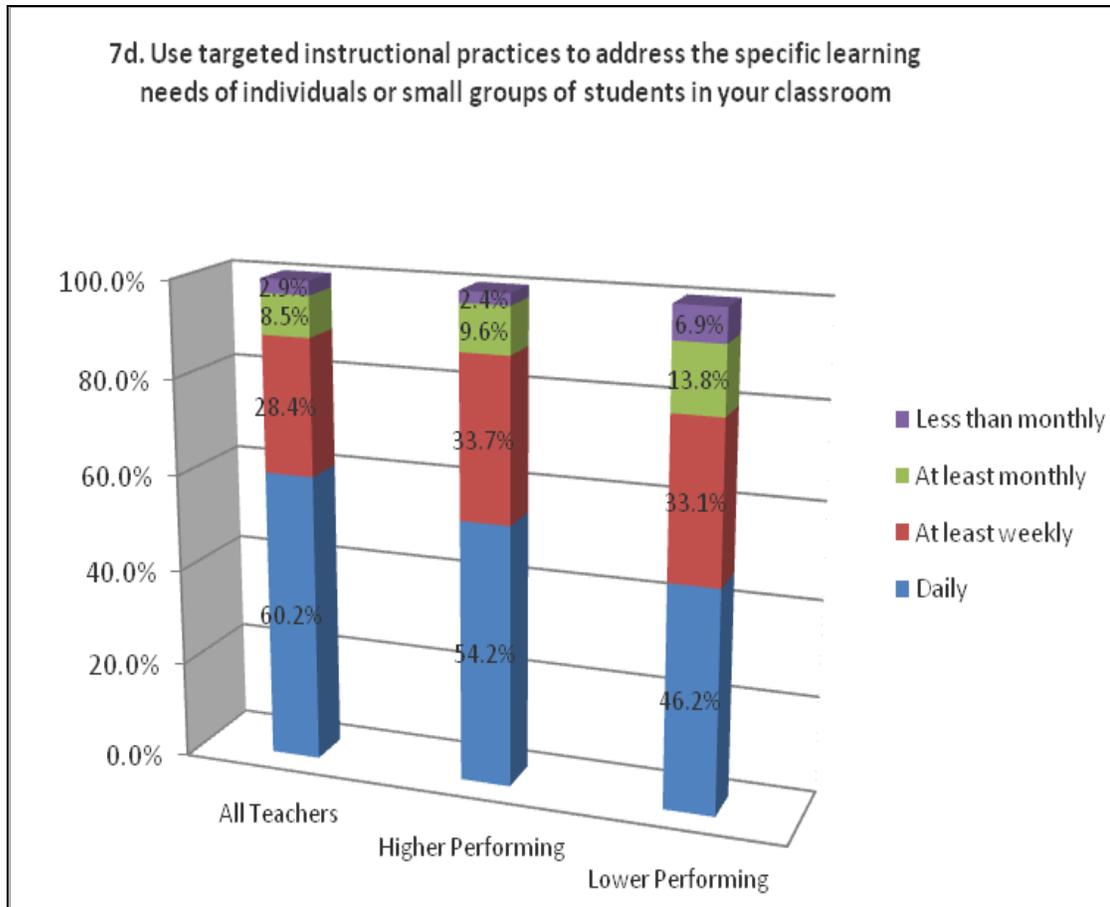
7.b Finding: 95.4%% of Statewide respondents report they use formative assessment techniques at least monthly. Schools performing higher than predicted have a slightly higher percentage of teachers reporting that they engage in this activity “daily” or “at least weekly” than teachers from lower performing schools:



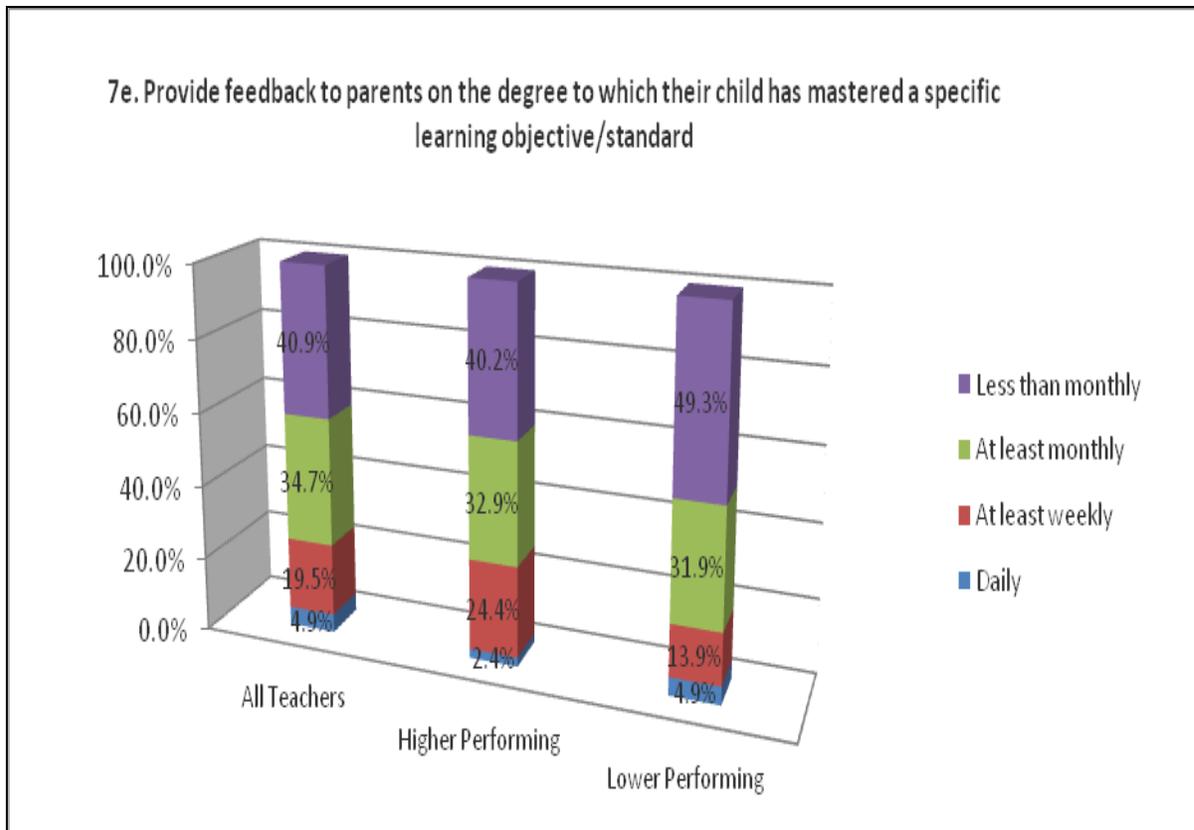
7.c Finding: 94.7% % of Statewide respondents report they provide feedback to students at least monthly on the degree to which they have mastered a specific learning target/objective. Schools performing higher than predicted have 8.5% more teachers reporting that they engage in this activity “daily” than teachers from lower performing schools:



7.d Finding: 97.1 % of Statewide respondents report they use targeted instructional practices to address the specific learning needs of individual or small groups of student in their classrooms at least monthly. Schools performing higher than predicted have 8% more teachers reporting that they engage in this activity “daily” than teachers from lower performing schools:



7.e Finding: 59.1 % of respondents statewide report they provide feedback to parents at least monthly on the degree to which their child has mastered a specific learning objective/standard. Schools performing higher than predicted have 10.5% more teachers reporting that they engage in this activity “at least weekly” than teachers from lower performing schools:



SUMMARY:

The QEC Best Practices Online Survey process resulted in the identification of five characteristics that are more prominent in high performing schools than lower performing schools. Taken collectively, they comprise a continuous improve process. Each activity is listed in order from greatest to least difference in prevalence among higher and lower performing schools:

- 1) Spending 60+ minutes per week analyzing evidence from State assessments with colleagues;
- 2) Setting goals for improving student achievement “always” or “usually” when collaborating with colleagues;

- 3) Providing feedback to parents on the degree to which their child has mastered a specific learning objective/standard “at least weekly;”
- 4) Providing feedback to students “daily” or “at least weekly” on the degree to which they have mastered a specific learning target/objective; and
- 5) Using targeted instructional practices to address the specific learning needs of individual or small groups of student in their classrooms “daily” or “at least weekly.”

Survey results also raise questions about the time teachers spend (and don't spend) throughout the State engaging in all five of the activities found to be more prevalent in higher performing schools. Further investigation of teacher practices, including the supports and impediments to implementation of these five practices (along with associated costs), could provide further insights.