

EDUCATING STUDENTS FOR SUCCESS



A Comparison of the
**MCAS and PARCC
Assessments**
as Indicators of
**College- and
Career-Readiness**

FEBRUARY 2015



MASSACHUSETTS
BUSINESS ALLIANCE
FOR EDUCATION



Center for
Assessment

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February 2015



ABOUT MBAE

The Massachusetts Business Alliance for Education (MBAE) was established in 1988 by employers concerned about the educational attainment and skills of graduates entering the workforce. Our core work – improving public education by influencing state policy – is driven by the business community’s commitment that all students graduate prepared for success in college, career, and citizenship.



ABOUT THE CENTER FOR ASSESSMENT

The National Center for the Improvement of Educational Assessment, Inc. (The Center for Assessment) is a Dover, NH based not-for-profit (501(c)(3)) corporation that seeks to improve the educational achievement of students by promoting improved practices in educational assessment and accountability. The Center for Assessment does this by providing services directly to states in conjunction with the states’ large-scale assessment and accountability programs. The Center also works with organizations that work directly with states, or whose work impacts states, including the Council of Chief State School Officers (CCSSO), WestEd, The National Center for Educational Outcomes (NCEO), the U.S. Department of Education. The Center also seeks to develop and disseminate broadly policies and practices that will improve educational assessment and accountability.

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IN A RECENT SURVEY CONDUCTED FOR THE MASSACHUSETTS BUSINESS ALLIANCE FOR EDUCATION (MBAE), employers representing a wide range of industries across Massachusetts told us that our education system is out of sync with their expectations and needs. Sixty-nine percent of employers report having difficulty hiring people with the right competencies to fill open positions. Many cited a lack of applied, real world skills as the problem and expressed concerns about current standardized tests that don't measure abilities needed for success outside of school.

The good news is the Commonwealth began implementing learning standards in 2011 that emphasize the critical thinking, communications, and problem solving skills students need to succeed in a competitive global economy and society. As Massachusetts considers changes to our assessment system to align it with those standards, it is critical that new tests also provide a true measure of what is required to be ready for higher education and the workforce. The stakes are high for employers who depend on a well-educated and highly skilled workforce to thrive and grow. What Massachusetts chooses to assess inevitably influences what is taught in our schools.

For that reason, the Massachusetts Business Alliance for Education (MBAE) commissioned this report. As a business organization committed to an education system that prepares all students to be productive citizens in a global society and economy, we believe that the decision about new assessments is an important opportunity. Not only is it a chance to address high, costly remediation rates at public colleges and employer dissatisfaction, but it is also time to give educators, students and families an honest indication of whether they are on track to meet postsecondary demands.

The Board of Elementary and Secondary Education will vote next fall whether to replace the Massachusetts Comprehensive Assessment System (MCAS) exams with those developed by the Partnership for Assessment of Readiness for College and Careers (PARCC) or choose an alternative course. Evidence of whether the current MCAS test measures readiness for college and career and how it compares with PARCC, at its current point of development in this regard, is necessary for an informed decision.

As more information becomes available from PARCC development and field testing, MBAE will continue to share our questions, concerns and views with the business community. This study is part of that effort to gather and share information, and to focus attention on the need to go beyond measures of proficiency to ensure education assessments are aligned with the real world expectations our children must be prepared to meet in the future.

— MASSACHUSETTS BUSINESS ALLIANCE FOR EDUCATION

EXECUTIVE SUMMARY

THE 2014-2015 SCHOOL YEAR IS AN UNUSUAL ONE FOR STATE ASSESSMENT IN MASSACHUSETTS. For the first time in more than a decade, MCAS¹ tests will not be administered to students in all districts and schools. Elementary and middle school students in about half of the school districts in the state will take the traditional MCAS tests, while students in the rest of the districts will take the new PARCC tests. At the high school level, all tenth grade students through the class of 2019 will continue to take the MCAS tests as part of their graduation requirement, but 71 public school districts (including charter schools) across the state will also administer PARCC tests to their ninth and/or eleventh grade students². The split MCAS and PARCC administration in 2014-2015 is the final phase of what Mitchell Chester, Massachusetts Commissioner of Elementary and Secondary Education, has described as a “two-year test drive for the PARCC assessments.” The Massachusetts Board of Elementary and Secondary Education is expected to decide by the end of 2015 whether MCAS or PARCC will be the state’s assessment program. A major factor in the Board’s decision will be which test proves to be the better gauge of students’ college- and career-readiness. In 2013, the Massachusetts Boards of Elementary and Secondary Education and Higher Education described college- and career-ready students as those students who “demonstrate the knowledge, skills and abilities that are necessary to successfully complete entry-level, credit-bearing college courses, participate in certificate or workplace training programs, and enter economically viable career pathways.”³

To inform that decision, the analysis reported here has been commissioned by the Massachusetts Business Alliance for Education to compare MCAS and PARCC as indicators of college- and career-readiness. To do that, we ask three questions of each program:

- *Does the test identify students who are college- and career-ready?*
- *Does the test contain the right content to measure college- and career-readiness?*
- *Do the elementary and middle school tests provide good information about student progress toward college- and career-readiness?*

The first two questions focus on the MCAS and PARCC high school tests. The first question on whether the test identifies students who are college- and career-ready addresses rigor: Will students who meet the standards established for the test, in fact, be college- and career-ready? The second question regarding the content of

the tests is particularly important if the answer to the first question is no, the test does not do a good job of distinguishing between students who are college- and career-ready and those who are not. If the college- and career-ready bar is set too low or too high, but the test contains appropriate content then the bar can simply be adjusted until it is correct. However, if the test does not contain the content needed to determine students’ college- and career-readiness then no amount of adjustment to the passing score will get that bar in the right place.

The third question focuses on the entire system of tests at grades three through high school. To provide useful feedback to students and parents and to support the improvement efforts of educators and policy makers, the assessments at each grade level must produce detailed information about student performance – information that is tied directly to student achievement of the content standards at that grade level. The tests must also provide coherent information across grade levels about how students are progressing toward college- and career-readiness.

FOR MCAS, our answer to each of the questions is a clear “No.” The current MCAS high school tests do not identify students who are college- and career-ready, and they do not contain the right content to measure college- and career-readiness. Across the entire program, MCAS provides limited information about the content and skills demonstrated by students performing at each achievement level, and it is difficult to interpret differences in achievement level results from one grade to the next.

FOR PARCC, our answer to each of the questions is a cautious and conditional “Yes.” As we are preparing this report in early 2015, the PARCC tests hold the promise of being a good indicator of college- and career-readiness, but it is not possible to know how much of that promise will be fulfilled.

The tables on pages 5-7 summarize the answers to each of the three questions for the current MCAS tests and the PARCC tests to be administered for the first time in the spring of 2015.⁴

CONCLUSIONS

In the following section, we summarize our findings on MCAS and PARCC as indicators of college- and career-readiness. It will become clear through our discussion that in many ways the examination of MCAS and PARCC undertaken in this report is a comparison of apples and oranges. We are comparing MCAS tests that have been in place for more than a decade to PARCC tests that are still under development and will not have their first full-scale administration until the spring of 2015. We are comparing MCAS tests designed for a variety of purposes – none of which include measuring college- and career-readiness – to PARCC tests designed specifically to measure students’ progress toward and attainment of college- and career-readiness. This comparison of apples and oranges is relevant and important, however, because it provides information and identifies key questions that must be addressed prior to the decision the Board of Elementary and Secondary Education will be making next fall when they choose the future direction of state assessment in Massachusetts.

MCAS

The answers to our three questions strongly indicate that the current MCAS tests are not a good indicator of college- and career-readiness. This should not be a surprise. MCAS was not designed for that purpose. Developed in response to the Massachusetts Education Reform Act of 1993 (MERA), the MCAS high school English Language Arts and Mathematics tests were designed to measure student proficiency on the state’s tenth grade standards. The passing score on the tenth grade MCAS test represents the minimum level of proficiency that all students have to meet to be eligible

for a high school diploma. Demonstrating competency on the tenth grade standards was a necessary condition for high school graduation. It is clear from the law, however, that competence on the tenth grade standards alone was not considered sufficient for college- and career-readiness. In addition to creating the tenth grade competency requirement, MERA established criteria for two additional certificates that went beyond students demonstrating proficiency on the tenth grade state assessment and are more closely tied to current views of college- and career-readiness:

- **Certificate of Mastery** – based upon a determination that students have demonstrated mastery of a comprehensive body of skills, competencies and knowledge comparable to that possessed by accomplished graduates of high school in the most advanced education systems in the world. The criteria for a certificate of mastery may include, but not be limited to, any of the following: high school graduation standards, superior performance on advanced placement tests, and demonstrated excellence in areas not reflected by the state’s assessment instruments, such as artistic or literary achievement.
- **Certificate of Occupational Proficiency** – awarded to students who successfully complete a comprehensive education and training program in a particular trade or professional skill area and shall reflect a determination that the recipient has demonstrated mastery of a core of skills, competencies and knowledge comparable to that possessed by students of equivalent age entering the particular trade or profession from the most advanced education systems in the world. No

student could be awarded the certificate of occupational proficiency without also meeting the tenth grade MCAS requirement.

The current MCAS tests were designed in the mid- to late-1990s. Features that are emblematic of MCAS represented the state-of-the-art in assessment technology when they were introduced in 1998:

- Including a mix of multiple-choice items and items that required students to produce written responses to items on all tests;
- On the Composition test, providing students the opportunity to write a first draft of their essay before preparing the final version to be scored;
- Providing virtually unlimited time for students to complete each test session; and
- Releasing all items on all tests each year for the first nine years of the program, and continuing to release half of items in subsequent years.

For every one of those visible features, there was a corresponding behind-the-scenes design and technical feature that was also state-of-the-art in the 1990s. In assessment, as in other fields, however, much has changed.

In 2001, the year that the tenth grade MCAS tests became a high-stakes requirement for graduation, Apple's introduction of iTunes® and iPods® revolutionized the way that we purchase and listen to music. A decade later, that same technology is still functional but seems archaic as the ways in which we consume music have continued to evolve. The iPod® gave way to the iPhone®, tablets, the cloud, and streaming music. Apple continues to sell songs and albums through iTunes, but Version 12.0 of iTunes released in October 2014 bears little resemblance to the iTunes of 2001.

MCAS, in contrast, remains virtually unchanged since the release of Version 1.0 in 1998. To be sure, there have been upgrades and tweaks to the assessment system since then as well as refinements to the content to keep up with revisions to the state's Curriculum Frameworks. But those have been incremental changes moving MCAS from Version 1.0 to 1.1, 1.2, etc. There has been no effort to build Version 2.0 of MCAS – a new state-of-the-art testing system fully aligned to the 2011 Curriculum Frameworks.

PARCC

At this point in time in early 2015, PARCC holds the promise of being a good indicator of college- and career-readiness. The high school tests are designed to assess college- and career-ready standards.

Plans are in place to ensure that students whose performance is classified as college- and career-ready not only have the required knowledge and skills in high school, but are actually prepared to enroll in credit-bearing courses in college. Finally, the entire assessment system from grade 3 through 11 is being designed to provide solid, detailed information to parents, students, and educators about student progress toward college- and career-readiness.

Of course, it is not possible to know with certainty how much of that promise will be fulfilled. The first full-scale administration of the PARCC tests is months away. The process for classifying students as college- and career-ready at the end of eleventh grade or on track to college- and career-readiness at grades 3 through 10 will not be implemented until the fall. Parents, teachers, and administrators will not begin to delve into the first set of PARCC results, data files, reports, and interpretive materials until well into the 2015-2016 school year. It will be several years before the first cohort of students to take the full battery of PARCC high school tests graduates from high school and enrolls in entry-level, credit-bearing courses in college.

Many important questions about PARCC, however, should be answered by the time the Board of Elementary and Secondary Education comes together in the fall of 2015 to make a decision on the future of the state assessment.

- In spring 2015, the Thomas B. Fordham Institute and the Human Resources Research Organization (HumRRo) will conduct a full-scale evaluation of how well aligned PARCC, MCAS, and other national assessments are to the Common Core State Standards and the extent to which they meet the criteria for high-quality assessments established by the Council of Chief State School Officers (CCSSO).
- By summer 2015, the first full-scale administration of the PARCC tests will be complete, providing the opportunity to collect valuable feedback about the test and the test experience from students and educators in Massachusetts as well as from other states across the country.

1 MCAS refers to the Massachusetts Comprehensive Assessment System. PARCC refers to the Partnership for the Assessment of Readiness for College and Careers.

2 Based on the October 2014 *Spring 2015 District Assessment Decision Update* released by the Massachusetts Department of Elementary and Secondary Education.

3 Read the full text of the Massachusetts Definition of College and Career Readiness at <http://www.mass.edu/library/documents/2013College&CareerReadinessDefinition.pdf>

4 The analysis of the MCAS and PARCC tests presented in this report is based on information about each program that was publicly available in the fall of 2014.

5 Among the 71 districts administering the PARCC high school tests, 50 districts will be administering PARCC tests to their ninth and eleventh grade students, and 21 districts will administer PARCC tests to only their ninth grade students.

- In fall 2015, initial PARCC results will be released. This will provide the opportunity for comparisons between student performance on PARCC and MCAS, between the performance of Massachusetts and other states on PARCC, and between the performance of Massachusetts on PARCC and other national assessments such as the National Assessment of Educational Progress (NAEP).

Each of those events should yield valuable information to inform the Board's decision.

An additional key piece of information about PARCC is how Massachusetts high school students perform on PARCC tests. Because of the state's high school graduation requirement, all tenth grade students through at least the class of 2019

will continue to take the current MCAS tests. High schools are not required to administer the PARCC tests in addition to the tenth grade MCAS tests. In 2015, however, 71 districts (including charter schools) have volunteered to administer PARCC high school tests to their ninth and/or eleventh grade students.⁵ Although the students in those districts may not be representative of the state, their performance on the PARCC tests should be of considerable value to the Board. In evaluating the PARCC college- and career-ready tests, the Board of Elementary and Secondary Education will have to supplement the information gained from this limited sample of students with all of the other information available about the content and design of the PARCC high school tests as well as results from other states. ◆

SUMMARY OF FINDINGS

Does the test identify students who are college- and career-ready?

MCAS

The Proficient bar on the MCAS high school tests is set very low compared to all other indicators of students' college- and career-readiness.

- The percentage of students performing at the Proficient level or higher on the MCAS English Language Arts and Mathematics tests is much higher than the percentage of students meeting the college readiness benchmarks on other tests such as the SAT or NAEP.
- More than one-third of Massachusetts high school graduates who enroll at one of the state's public colleges or universities place into one or more noncredit-bearing, remedial courses.

PARCC

PARCC intends to establish a college- and career ready bar that ensures that students who meet it "are academically prepared to engage successfully in entry-level, credit-bearing courses" in English and mathematics in college.

- Students receiving the PARCC college- and career-ready determination may be exempt from having to take and pass placement tests in two- and four-year public institutions of higher education.
- PARCC plans to conduct studies with colleges to ensure that students who are designated as college- and career-ready have a high probability of passing entry-level, credit-bearing English and mathematics courses.

SUMMARY OF FINDINGS

Does the test contain the right content to measure college- and career-readiness?

MCAS

The content of the MCAS high school tests is limited to what can be assessed on a single test administered at the end of tenth grade.

- MCAS tests high school students only one time at the end of the tenth grade.
- MCAS high school tests measure content no higher than the end of tenth grade standards.
- A large proportion of the items on recent MCAS tenth grade Mathematics tests measure sixth, seventh, or eighth grade standards.
- The tenth grade MCAS Composition test measures only one type of writing, literary analysis, and requires students to produce only one written composition.
- The tenth grade MCAS Reading test contains a mix of literary and informational passages with approximately half of the total points on the test coming from each type of passage.

PARCC

The series of ninth through eleventh grade high school tests will enable PARCC to assess a wide depth and breadth of content.

PARCC will test high school students three times, once per year in the ninth, tenth, and eleventh grades.

- To earn college- and career-ready designations in English Language Arts/Literacy and Mathematics, students will have to take and be successful on the eleventh grade tests.
- The PARCC mathematics tests will require students to apply skills, concepts, and understandings to solve multi-step problems requiring abstract reasoning, precision, perseverance, and strategic use of tools.
- The PARCC English Language Arts/Literacy tests will require students to produce a variety of types of writing. PARCC will require students to write effectively when analyzing literary and informational text.
- The PARCC English Language Arts/Literacy test will be more heavily weighted toward informational than literacy passages, as indicated in the Common Core.

SUMMARY OF FINDINGS

Do the elementary and middle school tests provide good information about student progress toward college- and career-readiness?

MCAS

There is a lack of consistency in the structure of the MCAS tests across grade levels; and Proficient performance was defined separately and at different times across grade levels.

- Across grades three through ten, MCAS is a patchwork of tests introduced at different times and for different purposes from 1998 through 2006.
- In English language arts, the MCAS tests include writing at only grades four, seven, and ten.
- Proficiency standards for the MCAS tests at grades three through eight were established independently from the high school standards and independently from each other at different times between 1998 and 2006.

English Language Arts

Grade 10 – 1998

Grades 3, 4 and 7 – 2001

Grades 5, 6, and 8 – 2006

Mathematics

Grades 4, 8, and 10 – 1998

Grade 6 – 2001

Grades 3, 5, and 7 – 2006

- Limited information is available to support the interpretation of MCAS proficiency results at grades 3 through 8 in relation to the content standards in the Curriculum Frameworks.

PARCC

The PARCC tests will have a consistent design across grade levels and results at each grade level are intended to signal whether students are on track to college- and career readiness.

- The PARCC tests at grades three through eleven are being developed and implemented together as a complete system of assessments.
- The PARCC English Language Arts/Literacy test will assess writing at every grade level.
- The college- and career-ready (grade 11) or on-track to college and career-ready (grades 3-10) standards for the PARCC tests will be established at the same time, with careful attention paid to the consistency of standards across grade levels.
- PARCC has prepared detailed descriptions of the content knowledge and skills expected of students performing at each achievement level on each of the grade 3 through 8 tests.

THE ANALYSIS

MASSACHUSETTS, LIKE STATES ACROSS THE COUNTRY, IS ENGAGED IN A NEW ERA of education reform where the focus is on *success after high school*—ensuring that all students graduate from high school college- and career-ready. A cornerstone of this national reform effort was the development of content standards that identify the knowledge and skills that students need to be prepared for college and careers. At the national level, this effort resulted in the state-led development of the Common Core State Standards (CCSS) in Mathematics and English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects. The development of the CCSS was heavily informed by Massachusetts educators participating in the development process and by the Massachusetts Curriculum Frameworks.⁶ At the state level, the final CCSS released in 2010 were reviewed by Massachusetts educators, supplemented with additional Massachusetts standards, and form the foundation of the 2011 Massachusetts Curriculum Frameworks in English Language Arts and Mathematics. The 2011 revision of the state’s Curriculum Frameworks are the college- and career-readiness standards that have guided curriculum and instruction in Massachusetts since 2011-2012 and guide the revision of the state assessment program.

The focus on success after high school and the adoption of college- and career-readiness standards have led to a call for new assessments aligned to those standards. Specifically, there is a demand for high-quality state assessments that are tests of critical thinking skills and complex student learning. In a speech that heralded the next generation of state assessments, *Beyond the Bubble Tests*, U.S. Secretary of Education Arne Duncan stated,

And last but not least, for the first time, the new assessments will better measure the higher-order thinking skills so vital to success in the global economy of the 21st century and the future of American prosperity. To be on track today for college and careers, students need to show that they can analyze and solve complex problems, communicate clearly, synthesize information, apply knowledge, and generalize learning to other settings. (USED, 2010)

Of course, Massachusetts already has a highly regarded state assessment program. The Massachusetts Comprehensive Assessment System (MCAS) is a core component of the reforms spurred by the Massachusetts Education Reform Act of 1993 (MERA) that have resulted in the state being hailed as one “that by many measures sets the gold standard for public education

in the United States,” and regarded by Gene Wilhoit, former executive director of the Council of Chief State School Officers, as “one of the major success stories in the country.” (Christian Science Monitor, 2012)

It is understandable, therefore, that the 2010 decision for Massachusetts to join with other states to form the Partnership for the Assessment of Readiness for College and Careers (PARCC) to design and develop a state assessment program that might supplant MCAS would engender a great deal of concern and highly-charged emotions. Beyond concerns about ceding control of the assessment to others outside of Massachusetts, there are legitimate concerns about lowering standards and weakening public education in Massachusetts by adopting an inferior assessment program. Although there is little debate that Massachusetts’ state assessment must continue to evolve to fulfill the original goals of MERA and to support the building of a college- and career-ready Massachusetts, there is a decision to be made about whether the best course of action for the state is to continue to work on its own to develop a next generation MCAS fully aligned to the 2011 Curriculum Frameworks or to adopt the newly developed PARCC assessments as its state assessment. The state Board

of Elementary and Secondary Education is scheduled to address that question in the fall of 2015, following the first full-scale administration of the PARCC tests in spring 2015. One of the issues that the Board will consider as they evaluate the relative merits of MCAS and PARCC is how do the two assessment programs compare as indicators of college- and career-readiness.

PURPOSE OF THIS REPORT

The Massachusetts Business Alliance for Education, the organization credited for its leadership in development and passage of MERA, commissioned this report to inform the business community and, ultimately, the Board's decision. In this report we compare MCAS and PARCC as indicators of college- and career-readiness. To do that, we ask three questions of each program:

- *Does the test identify students who are college- and career-ready?*
- *Does the test contain the right content to measure college- and career-readiness?*
- *Do the elementary and middle school tests provide good information about student progress toward college- and career-readiness?*

The answers to those three questions provide valuable information about which test is a better indicator of students' college- and career-readiness. The first two questions focus on the MCAS and PARCC high school tests which will be used to identify students who are college- and career-ready. Those high school tests, however, represent only the final tests in an assessment system that begins in third grade. The third question, therefore, focuses on the entire system of tests at grades three through high school.

The first question that asks how well the test identifies students who are college- and career-ready addresses whether the test is able to distinguish between students who have the academic knowledge and skills to succeed after high school and those who do not. In answering this question, we are concerned about whether the college- and career-ready bar on the test is set in the right place. If the bar is set too low, many students classified as college- and career-ready will be unprepared for the demands of college and the workplace. If the bar is set too high, students who are prepared to meet those demands may be denied access to appropriate college and career opportunities.

The second question regarding the content of the tests is particularly important if the answer to the first question is no, the test does not do a good job of distinguishing

between students who are college- and career-ready and those who are not. If the test contains appropriate content but the college- and career-ready bar has been set too high or too low, it is a relatively straightforward process to adjust the bar until it is correct. It is a much more difficult problem to solve, however, if the test does not contain appropriate content to determine whether students are college- and career-ready. If the test does not contain the right content, no amount of adjustment to the passing score will improve its accuracy in identifying students who are college- and career-ready.

The state assessment system must be able to accurately identify high school students who are college- and career-ready. However, as a complete system of tests administered from third grade through high school it must do more than that to be a useful tool for students, parents, educators, and policy makers. The third question, therefore, addresses the extent to which the elementary and middle school tests provide good information about student progress toward college- and career-readiness. At a minimum, that includes coherent information about student achievement across grade levels. Ideally, the system will also produce detailed information about student performance that can be used to support the improvement efforts of educators and policy makers.

SCOPE OF THIS REPORT

To address the questions described above in this report we must make use of existing information about the MCAS and PARCC tests. For MCAS, a wealth of information has been accumulated since the first MCAS tests were administered in 1998. For PARCC, much less information is available at this time. As this report is being developed early in 2015, PARCC is in the final stages of developing its first operational tests which will be administered in spring 2015. At this time, we must rely heavily on PARCC's design, development, and implementation plans rather than on a review of actual tests and results. Fortunately, those plans do provide insight into the potential of PARCC to function as an indicator of students' college- and career-readiness.

STRUCTURE OF THIS REPORT

This report is structured around the three questions posed above. A separate section of the report is dedicated to each question. Within each section, we attempt to answer the question separately for MCAS and PARCC and then provide a side-by-side comparison of MCAS and PARCC. ◆

6 "The Massachusetts Department of Elementary and Secondary Education began revisions of its currently accepted frameworks for English Language Arts (2001/2004) and Mathematics (2000/2004) in 2008, before the development of the Common Core State Standards Initiative began. Our staff and review panels continued to refine these working drafts in 2008-2010 and they were used as resource material by the Common Core State Standards writing teams." (MA DESE, 2010, <http://www.doe.mass.edu/news/news.aspx?id=5562>)

DOES THE TEST IDENTIFY STUDENTS WHO ARE COLLEGE- AND CAREER-READY?

THIS QUESTION OF WHETHER THE TEST DISTINGUISHES BETWEEN STUDENTS who are college- and career-ready and those who are not addresses the rigor of the MCAS and PARCC achievement standards, asking whether students who meet the standards established for the test will, in fact, be prepared to succeed after high school in college or career.

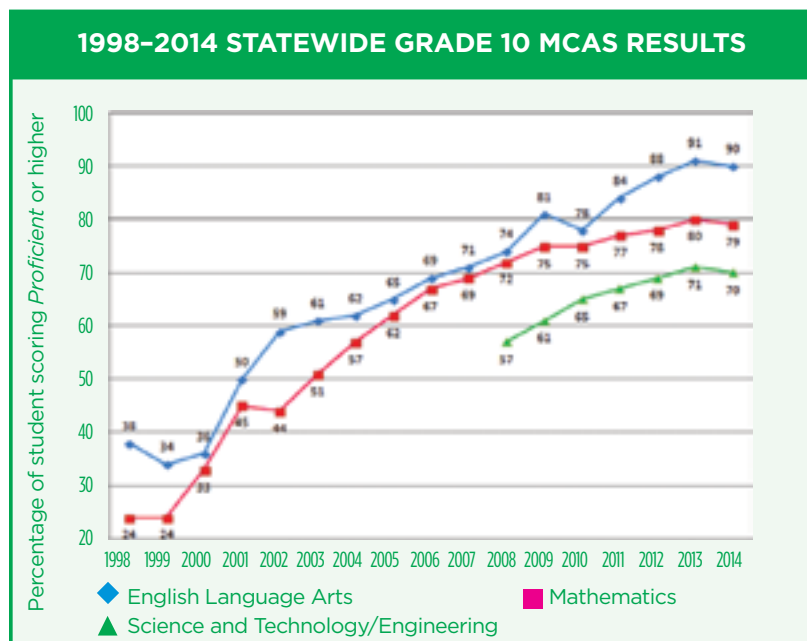
MCAS

There is no college- and career-ready bar set for the MCAS tests. The goal for state and federal accountability purposes, including the high school graduation requirement, has been for students to perform at the *Proficient* level on the MCAS tests. Therefore, that is the level that we focus on in this report. To answer the question of whether the *Proficient* bar on MCAS can be considered a good indicator of college- and career-readiness, we first

compare results on the MCAS high school tests with other tests of college readiness. Then we examine information on the rates of remediation required at public colleges and universities in Massachusetts.

COMPARISONS OF MCAS RESULTS WITH OTHER ASSESSMENTS OF COLLEGE- AND CAREER READINESS

Results from the most recent administration of the grade 10 MCAS English Language Arts and Mathematics tests in spring 2014 show the vast majority of students performing at the *Proficient* level or higher: 90% of students on the English Language Arts test and 79% of students on the Mathematics test. As shown in the chart to the left from the 2014 MCAS Summary of State Results (MA DESE, 2014), those scores reflect significant improvement from the inception of MCAS in 1998 and from implementation of the high-stakes competency determination graduation requirement in 2001. Since 2001, the percentage of students scoring *Proficient* or higher on the MCAS tests has increased by more than 30 percentage points on both the English Language Arts and Mathematics tests.



RESULTS FROM OTHER TESTS

Results from national high school tests such as the National Assessment of Educational Progress (NAEP) and the SAT indicate that the *Proficient* standard on

MCAS is not an indicator of college readiness. Although Massachusetts performs very well on tests such as NAEP and the SAT when compared to other states, college readiness results from both of those tests suggest a much smaller percentage of Massachusetts students are college ready than the percentage of students scoring *Proficient* on MCAS would indicate.

NAEP

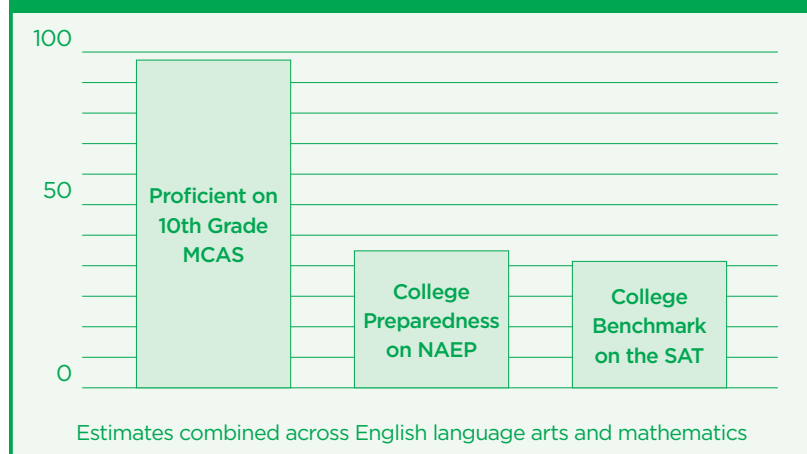
NAEP is described as the “largest nationally representative and continuing assessment of what America’s students know and can do in various subject areas” (NCES NAEP Overview). Federally mandated and operated by the National Assessment Governing Board (NAGB), NAEP tests in Reading and Mathematics are administered to a representative sample of Massachusetts fourth, eighth, and twelfth grade students every two years. In 2014, NAGB released the first NAEP college

schools earned an average SAT score of 506 in Critical Reading and 521 in Mathematics. In both content areas, those average scores are above the national average and above the SAT college readiness benchmark of 500. On the surface, those results would suggest that slightly more than half of Massachusetts students met the college readiness benchmark in Critical Reading and an even higher percentage met that benchmark in Mathematics.

Unlike the MCAS, however, which is completed by virtually all high school students in the state, and NAEP, which is administered to a representative sample of students statewide, the SAT is administered to a self-selected sample of students. In recent years, approximately 50,000 Massachusetts students in each graduating class have taken the SAT – approximately 70% of the more than 70,000 students who complete the tenth grade MCAS tests. Assuming that the 30% of Massachusetts students who do not participate in the SAT are most likely lower performing students than those who do take the tests, once again test results suggest that less than half of Massachusetts twelfth grade students are graduating from high school ready for college in reading and mathematics.

In addition to the college readiness benchmarks in each content area, the College Board also reports a College and Career Readiness Benchmark based on a composite of student performance across the SAT Critical Reading, Mathematics, and Writing tests. That benchmark is associated with a “65% probability of obtaining a first-year college GPA of B- or higher” (College Board, 2014). In the class of 2014, the College Board reports that 23,307 Massachusetts graduating seniors met the College and Career Readiness Benchmark – that figure represents 46.8% of students who took the SAT and roughly one-third of all students statewide.

MASSACHUSETTS HIGH SCHOOL STUDENTS MEETING BENCHMARKS ON MCAS, NAEP, AND THE SAT



7 On the 2013 NAEP Grade 12 Reading test, the Massachusetts average score was 293 and the NAEP College Preparedness Benchmark was 302. On the 2013 NAEP Grade 12 Mathematics test, the Massachusetts average score was 161 and the NAEP College Preparedness Benchmark was 163. http://www.nationsreportcard.gov/reading_math_g12_2013/#/

preparedness results based on student performance on the grade 12 NAEP Reading and Mathematics tests. NAGB reported that nationally 38% of students met their college preparedness in reading and 39% of students met their college preparedness benchmark in mathematics. The Massachusetts average scores on both the Reading and Mathematics tests were close to but below the college preparedness benchmark, suggesting that fewer than half of Massachusetts twelfth grade students are academically prepared for college⁷.

SAT

The SAT is a national college admissions test administered by the College Board. The performance of Massachusetts students on the SAT is among the highest in the nation. In 2013, students in Massachusetts public

REMEDIATION RATES AT PUBLIC COLLEGES AND UNIVERSITIES

Scores from tests such as NAEP and the SAT may be accurate predictors of college readiness, but the actual performance of Massachusetts students in colleges provides better evidence of the usefulness of MCAS scores as an indicator of college readiness. Since the first data on MCAS and college remediation were released in 2009, there have been consistent findings that a significant percentage of students graduating from Massachusetts high schools require remediation and must enroll in non-credit bearing courses in postsecondary institutions. The following recent editorial statements by Mitchell Chester, the current Commissioner of Elementary and Secondary Education,

and David Driscoll, former Commissioner of Education in Massachusetts (1998-2007) and NAGB Board Member (2010-2014), summarize the extent and impact of the problem Massachusetts high school graduates requiring remediation in college.

Excerpt from an op-ed piece by David Driscoll and Gary Kaplan published by the Lowell Sun on November 3, 2014:

Each year, according to state Higher Education Commissioner Richard M. Freeland, 11,000 Massachusetts high school graduates cannot pass the entrance exams to community colleges and end up in noncredit remedial courses. Worse yet, 90 percent of those young people drop out without a degree, often after using up their financial aid and even taking out loans.

(http://www.lowellsun.com/latestnews/ci_26854884/battling-massachusetts-college-readiness-gap#ixzz3lyDKXqwe)

Excerpt from an op-ed piece by Mitchell Chester and Richard Freeland published by the Boston Globe on March 27, 2014:

But beneath the surface of this strong student performance, a more nuanced picture emerges. Nearly 36 percent of Massachusetts's public high school graduates who enroll at one of the state's public colleges or universities — including 65 percent

of all community college students — place into one or more noncredit-bearing, remedial courses.

(<http://www.bostonglobe.com/opinion/2014/03/27/are-our-students-ready-for-college/3H3CjvhD73vqZYCVTZfD2L/story.html>)

The impact of such a large percentage of students requiring remediation in college is summarized in the findings of a 2013 Board of Higher Education Task Force on Transforming Developmental Education (MA BHE, 2013). The task force found that only 20% of the 11,000 community college students who took remedial math in 2010 completed a credit-bearing college level mathematics course within two years. As the Task Force reported, the impact of that statistic is “almost 9,000 students who required developmental math were ‘lost’ — that is, they did not complete a college level math class, effectively ending their higher education aspirations.” The task force also cited national findings that “fewer than 25% of those who begin post-secondary education in developmental coursework ever acquire a degree.”

MCAS SUMMARY

The Proficient bar on the MCAS high school tests is set very low compared to all other indicators of students' college- and career-readiness.

PARCC

As a starting point in the process of setting a college- and career-readiness bar for its eleventh grade tests, PARCC has developed a detailed set of policy-level claims of what students who earn the college- and career-ready designation should know and be able to do. The PARCC claims also include a statement of how the test results are expected to be used by institutions of higher education - exempting students from taking college placement exams to enroll in entry level, credit-bearing courses. The policy claims for the English Language Arts/Literacy and Mathematics eleventh grade tests are shown below.

PARCC ELEVENTH GRADE POLICY CLAIMS FOR COLLEGE- AND CAREER-READINESS

For reporting results of assessments used to make College- and Career-Ready Determinations

- Students performing at this level demonstrate a **strong command** of the knowledge, skills, and practices embodied by the Common Core State Standards for English language arts/literacy assessed at grade 11. They are academically prepared to engage successfully in entry-level, credit-bearing courses in College English Composition, Literature, and technical courses requiring college-level reading and writing. Students performing at this level are exempt from having to take and pass college placement tests in two- and four-year public institutions of higher education designed to determine whether they are academically prepared for such courses without need for remediation.
- Students performing at this level demonstrate a **strong command** of the knowledge, skills, and practices embodied by the Common Core State Standards for Mathematics assessed at Algebra II or Integrated Mathematics III. They are academically prepared to engage successfully in entry-level, credit-bearing

courses in College Algebra, Introductory College Statistics, and technical courses requiring an equivalent level of mathematics. Students performing at this level are exempt from having to take and pass placement tests in two- and four-year public institutions of higher education designed to determine whether they are academically prepared for such courses without need for remediation.

PLANS FOR ESTABLISHING AND VALIDATING THE COLLEGE- AND CAREER-READY DETERMINATION

PARCC also plans to empirically validate its achievement standards and claims of students' college- and career-readiness. In addition to the policy level and grade- and subject-specific descriptions of the knowledge and skills students demonstrate at each achievement level, PARCC plans to conduct studies to ensure that its college- and career-ready determinations meet the following criteria:

- Students who earn a College- and Career-Ready Determination by performing at level 4 in ELA/literacy and enroll in College English Composition, Literature,

and technical courses requiring college-level reading and writing have approximately a 0.75 probability [a 75% chance] of earning college credit by attaining at least a grade of C or its equivalent in those courses.

- Students who earn a PARCC College- and Career-Ready Determination by performing at level 4 in mathematics and enroll in College Algebra, Introductory College Statistics, and technical courses requiring an equivalent level of mathematics have approximately a 0.75 probability [a 75% chance] of earning college credit by attaining at least a grade of C or its equivalent in those courses.

PARCC SUMMARY

PARCC intends to establish a college- and career-ready bar that ensures that students who meet it “are academically prepared to engage successfully in entry-level, credit-bearing courses” in English and mathematics in college.

SUMMARY OF FINDINGS

Does the test identify students who are college- and career-ready?

MCAS

The Proficient bar on the MCAS high school tests is set very low compared to all other indicators of students' college- and career-readiness.

- The percentage of students performing at the Proficient level or higher on the MCAS English Language Arts and Mathematics tests is much higher than the percentage of students meeting the college readiness benchmarks on other tests such as the SAT or NAEP.
- More than one-third of Massachusetts high school graduates who enroll at one of the state's public colleges or universities place into one or more noncredit-bearing, remedial courses.

PARCC

PARCC intends to establish a college- and career ready bar that ensures that students who meet it “are academically prepared to engage successfully in entry-level, credit-bearing courses” in English and mathematics in college.

- Students receiving the PARCC college- and career-ready determination may be exempt from having to take and pass placement tests in two- and four-year public institutions of higher education.
- PARCC plans to conduct studies with colleges to ensure that students who are designated as college- and career-ready have a high probability of passing entry-level, credit-bearing English and mathematics courses.

DOES THE TEST CONTAIN THE RIGHT CONTENT TO MEASURE COLLEGE- AND CAREER-READINESS?

OUR FIRST QUESTION ASKED WHETHER THE TEST IDENTIFIES STUDENTS WHO are college- and career ready. This second question addresses whether the test contains the right content to measure college- and career-readiness. This question is particularly important when the answer to the first question is no, the test does not identify students who are college- and career-ready. If the answer is no because the college- and career-ready bar is set too low or too high, but the test contains appropriate content, then the bar can simply be adjusted until it is correct. However, if the test does not contain the content needed to determine students' college- and career-readiness then no amount of adjustment to the passing score will get that bar in the right place.

MCAS

We begin with an overview of high school MCAS testing. The overview includes a discussion of when the high school tests are administered and the type of items included on the tests. This is followed by a more detailed consideration of the content of the MCAS Reading, Composition, and Mathematics tests.

OVERVIEW OF THE MCAS HIGH SCHOOL TESTS

Administered in the Tenth Grade

At the high school level, MCAS consists of a single English Language Arts and Mathematics test administered in the tenth grade. The English Language Arts test is administered in late March (Composition and Reading). The Mathematics test is administered in mid-May.

The Reading test is administered in three sessions. The Composition and Mathematics tests are administered in two sessions each. Individual test sessions are designed to be administered in 45 minutes for the Reading and Composition tests and 60 minutes for the Mathematics tests. However, all MCAS test sessions are untimed (MA DESE, 2014).

The tenth grade MCAS English Language Arts and Mathematics tests are designed to measure the end of tenth grade standards contained in the Massachusetts Curriculum Frameworks.

Contain a Mix of Item Types

The Reading and Mathematics tests contain a variety of items that require students not only to identify and select a correct response to an item (multiple choice), but also to generate and explain their own response to an item (open response). The use of a mix of item types is intended to serve a particular purpose. Multiple-choice items “are used to provide breadth of coverage within a content area” and “allow for coverage of a wide range of knowledge and skills.” Open-response items “typically require students to use higher-order thinking skills – such as evaluation, analysis, and summarization – to construct satisfactory responses” (MA DESE, 2013).

- *Multiple-choice items* require students to select the correct answer from a list of four options. Responses to multiple-choice questions are machine scored.
- *Open-response items* require students to generate, rather than recognize, a response. Students create a one- or two-paragraph response in writing or in the form of a narrative or a chart, table, diagram,

illustration or graph, as appropriate. Students can respond correctly using a variety of strategies and approaches.

Responses to open-response items are scored using an item-specific scoring guide and anchor papers (student work) for each question. The scoring guides indicate what knowledge and skills students must demonstrate. Open-response questions are scored on a scale of 0-4 points.

- Answers to open-response questions are not scored for spelling, punctuation, or grammar. Responses are scored by one scorer at grades 3-8. Grade 10 English Language Arts and Mathematics tests and high school Science and Technology/Engineering tests are scored by two independent scorers.
- A special type of open-response item, *short-answer items*, are included only on MCAS Mathematics tests and require students to generate a brief response, usually a numerical solution or a brief statement. Responses to short-answer questions are scored on a

scale of 0-1 points by one scorer at grades 3-8 and by two independent scorers at grade 10.

The Composition portion of the MCAS English Language Arts test, which will be discussed in more detail in its own section below, consists of a single writing prompt.

- *Writing prompts* require students to respond by creating a written composition.

Student compositions are scored independently by two scorers for

- topic development, based on a six point scale, with students receiving from 2 to 12 points (the sum of scores from each of the two scorers)
- standard English conventions, based on a four-point scale, with students receiving from 2 to 8 points (the sum of the scores from each of the two scorers)

Samples of items, scoring guides, and supporting materials from previously administered MCAS tests are available on the Massachusetts Department of

ITEM TYPES USED ON THE MCAS HIGH SCHOOL TESTS

	English Language Arts - Reading	English Language Arts - Composition	English Language Arts - Reading and Composition Combined	Mathematics
Multiple-choice Items	36 items - 36 points			32 items - 32 points
Open-response and short-answer items	4 items - 16 points			6 items - 28 points
Short-answer items				4 items - 4 points
Writing Prompt		1 prompt - 20 points		
Total			41 items - 72 points	42 items - 60 points
% of Points from multiple-choice items	69%		50%	53%
% of points from open-response items, short-answer items, or writing prompts	31%	100%	50%	47%

Elementary and Secondary Education website at <http://www.doe.mass.edu/mcas/testitems.html>.

On both the English Language Arts and Mathematics high school tests, approximately half of the total points are obtained from multiple-choice items and the remaining half of the points are obtained from items which require students to produce their own response. The table above summarizes the total number of points on each test and the percentage of points attained from multiple-choice and open-response/short-answer items. The table above summarizes the total number of items and points on each test and the percentage of points obtained from each type of item.

MATHEMATICS

Although the tenth grade MCAS tests are designed to measure the grade 9-10 learning standards, a longstanding concern regarding the usefulness of the test as an indicator of college and career readiness is the percentage of the test devoted to items measuring lower level standards. In 2001, Achieve, Inc. conducted a review of the tenth grade MCAS tests at the request of the Massachusetts Department of Education. The summary report produced for that evaluation included the finding that thirty-one percent of the items on the 2001 MCAS grade 10 test were specifically designed to assess 8th-grade standards (Achieve, 2001). In a subsequent study examining the content of high school exit exams in several states, Achieve found that 65% of the Algebra items on the tenth grade MCAS test measured Pre-algebra topics, with only 17% measuring Basic Algebra, and 17% measuring Advanced Algebra (Achieve, 2004). In the same report, Achieve noted that 55% of the items on the tenth grade MCAS test measured the low level cognitive skills of 'Recall' and

'Using Routine Procedures' while only 23% of items measured higher level skills such as 'Formulating Problems and Strategizing Solutions' and 'Advanced Reasoning' In a general conclusion that applied to the MCAS tests, Achieve found:

The tests measure only a fraction of the knowledge and skills that colleges and employers say are essential. The exit exams in these six states measure some of the skills essential for college and workplace success, but a significant number of those skills go largely unmeasured. The skills that do get measured are staples; students cannot succeed without them. But the large gap between these tests and the real-world expectations of colleges and employers suggests that current exit exams are not strong measures of college and workplace readiness. (p. 2)

Although the findings in the Achieve studies are more than a decade old, the structure of the MCAS tenth grade tests has not changed and an analysis of current MCAS tests reveals a similar pattern of a large proportion of the items on the tenth grade test measuring middle school standards. A review of the MA DESE mapping of items on the 2013 and 2014 tenth grade MCAS mathematics tests to the 2011 Massachusetts Curriculum Frameworks reveals that 50% of the points on the 2013 test and 40% of the points on the 2014 test were obtained from items tests mapped to middle school standards. In 2013, 30 of the 60 points (50%) on the tenth grade MCAS test were derived from items measuring middle school standards. On the 2014 test, 24 of the 60 points (40%) were derived from items measuring middle school standards.

To provide a college- and career-readiness context for those numbers, in both 2013 and 2014, students had to earn only 17 points on the tenth grade MCAS test for their performance to be classified at the *Needs Improvement* level. Furthermore, only 29 points on the

INCLUSION OF MIDDLE SCHOOL STANDARDS ON THE TENTH GRADE MCAS MATHEMATICS TEST

	High School Standards (Grade 9-10)	Middle School Standards (Grades 6, 7, or 8)	Total
2013	18 items 30 points	24 items 30 points	42 items 60 points
2014	24 items 36 points	18 items 24 points	42 items 60 points

Source: Massachusetts Department of Elementary and Secondary Education, MCAS Released Items, 2013 and 2014

2013 test and 28 points on the 2014 test were needed for student performance to be classified at the *Proficient* level. In other words, in 2013 it was possible for a student to perform at the *Proficient* level solely on the basis of points earned on items aligned to middle school standards. On the 2014 test, a student earning all of the points possible on the middle school items needed only 4 additional points on items aligned to the high school standards for his or her performance to be classified at the *Proficient* level.

There are certainly valid reasons for including items aligned to middle school standards on the tenth grade test, particularly during the transition to the new frameworks. However, the inclusion of such a large percentage of those items on the tenth grade MCAS test diminishes its usefulness as an indicator of college- and career-readiness in two important ways:

- As described above, it enables high school students' performance to be classified as Proficient primarily on the basis of their performance on items aligned to middle school standards; and
- It limits the opportunity to include items on the test that require high performing students to engage with items measuring complex, higher level knowledge and skills.

ENGLISH LANGUAGE ARTS – WRITING

On each grade level test, the MCAS Composition requires students to produce a single essay in response to a brief prompt. The prompts do not include reading passages or other materials on which students must base their response – a key element of the 2011 Curriculum Frameworks.

The MCAS Composition is administered in two sessions on a single day. In session 1, students prepare a draft of their essay. The draft essay produced in session 1 is not scored. In session 2, students refine their draft essays and produce the final draft, which will be scored.

The tenth grade MCAS Composition test measures only a single mode of writing, literary analysis. On each MCAS test, students are asked to refer to a work of literature they have read in or out of school to respond to the writing prompt provided. Other than the broadly interpreted label “work of literature,” there are no requirements defining the source that students may use as the basis for their essay. The MCAS Grade 10 writing prompt from 2013 is provided as an example.

2013 Grade 10 MCAS Composition – Writing Prompt

Often in works of literature, a character's traits can cause his or her downfall. From a work of literature you have read in or out of school, select a character who displays one of the traits listed in the box below.

- pride
- greed
- envy
- selfishness

In a well-developed composition, identify the character, describe how this one trait causes the downfall of the character, and explain how the character's downfall is important to the work as a whole.

ENGLISH LANGUAGE ARTS – READING

The increased focus on the importance of proficiency in reading informational as well as literary texts in the 2011 Curriculum Frameworks is a major shift from previous versions of the frameworks. Although reading informational texts has always been an important component of the Curriculum Frameworks and the MCAS Reading test, the current standards call for the high school assessment to focus heavily on informational texts:

To measure students' growth toward college and career readiness, assessments aligned with the standards should adhere to the distribution of texts across grades cited in the NAEP framework. (In the 2009 NAEP Reading Framework, the distribution of passages at grade 4 is 50% literary, 50% informational; at grade 8, 45% literary and 55% informational; at grade 12, 30% literary and 70% informational.) (2011 Curriculum Frameworks, p. 5)

On the current tenth grade MCAS Reading test, there is still a roughly equal distribution between literary and informational texts, with each type accounting for approximately half of the points on the test.

MCAS SUMMARY

The content of the MCAS high school tests is limited to what can be assessed on a single test administered at the end of tenth grade.

PARCC

As we did in the previous section describing the MCAS tests, we begin the description of the content of the PARCC high school tests with an overview of PARCC testing at high school. The overview includes a discussion of when the high school tests are administered and the type of items included on the tests. This is followed by a more detailed discussion of the structure of the PARCC tests.

OVERVIEW OF THE PARCC HIGH SCHOOL TESTS

Administered in the Ninth, Tenth, and Eleventh Grades

With regard to their relative value as indicators of college- and career-readiness, the biggest difference between high school testing on MCAS and PARCC is while MCAS testing concludes at grade 10, PARCC includes tests through the end of grade 11. The PARCC designation of a student as college- and career-ready will be based on student performance on the grade 11 tests in English Language Arts/Literacy and Mathematics.

Another major difference between MCAS and PARCC high school testing is that PARCC includes three tests at the high school level. In English Language Arts/Literacy, PARCC includes tests designed to be administered at the end of grades 9, 10, and 11. In Mathematics, PARCC has developed two series of tests tied to the organization of mathematics courses at the high school level. For students in schools with an Integrated Mathematics program, PARCC has developed Integrated Mathematics I, Integrated Mathematics II, and Integrated Mathematics III assessments. For students in schools offering courses such as algebra, geometry, etc., PARCC has developed assessments in Algebra I, Geometry, and Algebra II.

Contain a mix of item types

Like MCAS, in order to measure student performance on higher level cognitive skills, all PARCC assessments include a variety of item types at each grade level that require students to produce rather than select a response. However, unlike MCAS, which is limited by its paper-and-pencil format to traditional multiple-choice and open-response items, PARCC assessments are designed to be administered via computer, allowing a much wider

variety of item types that can be included. A brief description of the innovative item types found on the PARCC English Language Arts/Literacy assessments is provided below.

Range of Prose Constructed Responses (PCR)—

- Elicits evidence that students have understood a text or texts they have read and can communicate that understanding well in terms of written expression and knowledge of language and conventions.

Evidence-Based Selected Response (EBSR)—

- Combines a traditional selected-response question with a second selected-response question that asks students to show evidence from the text that supports their answer to the first question.

Technology-Enhanced Constructed Response (TECR)—

- Uses technology to capture student comprehension of texts in authentic ways that have been difficult to score by machine for large scale assessments (e.g., [students are able to] drag and drop, cut and paste, shade text, move items to show relationships).

In mathematics, PARCC has shifted from describing *items* in terms of the type of response that students will provide (e.g., multiple-choice, open-response) to defining *tasks* in terms of the content and knowledge and skills that they are designed to assess. PARCC has developed three categories of mathematical tasks that will be distributed across Mathematics tests at all grade levels. This approach makes more explicit the traditional distinction between the purpose of multiple-choice items (“to provide breadth of coverage within a content area”) and open-response items (“to require students to use higher-order thinking skills”). Excerpts from the PARCC descriptions of Type I, II, and III Mathematics Tasks are provided in the table below.

MATHEMATICS TASKS

Type I

Type I tasks include a balance of conceptual understanding, fluency, and application. These tasks can involve any or all mathematical practice standards.

Type I tasks will appear on the End of Year and Performance Based Assessment components and generate evidence for measuring major, additional, and supporting content with connections to the mathematics practices as indicated in the PARCC Model Content Frameworks for Mathematics.

Type II

Type II tasks call for written arguments/justifications, critique of reasoning, or precision in mathematical statements (MP. 3, 6). These tasks can also involve other mathematical practice standards.

Type II tasks will be included on the Performance Based Assessment component and generate evidence for measuring mathematics reasoning with connections to content.

Type III

Type III tasks call for modeling/application in a real-world context or scenario (MP.4) and can also involve other mathematical practice standards.

Type III tasks will be included on the Performance Based Assessment component and generate evidence for measuring mathematical modeling/application with connections to content.

Samples and complete descriptions of the PARCC Type I, II, and III mathematics items can be found at <http://www.parcconline.org/samples/mathematics/high-school-mathematics>

ALIGNMENT OF ITEMS TO MULTIPLE STANDARDS

The use of innovative item types is not the only way in which PARCC items will differ from items found on MCAS. By design, all MCAS test items are developed to be aligned to a single content standard, although some items require the application of multiple skills. In contrast, many PARCC items and tasks are designed to assess multiple standards and to require students to produce responses that provide multiple sources of evidence of the level of knowledge and skills they have acquired (PARCC, 2013).

STRUCTURE OF THE PARCC TESTS

In addition to the use of innovative item types, the PARCC design includes two separate components for each English Language Arts/Literacy and Mathematics assessment at each grade level:

- *Performance-Based Assessment (PBA)* – the performance-based assessment is administered at the completion of approximately three-fourths of the school year and requires students to produce responses to demonstrate what they know.
- *End-of-Year Assessment (EOY)* – the end-of-year assessment is administered closer to the end of the school year and requires students to demonstrate their acquired skills and knowledge by answering computer-based, machine-scorable questions.

At the high school level, the PARCC English Language Arts/Literacy tests will be administered in five sessions: three sessions for the Performance-Based Assessment (PBA) and two sessions for the End-of-Year (EOY) assessment. The three sessions on the English Language Arts/Literacy PBA will be administered in 75, 90, and 60 minutes, respectively. The two sessions on the English Language Arts/Literacy EOY will be administered in 60 minutes. The high school Mathematics tests will be administered in four sessions: two sessions each for the Performance-Based Assessment and End-of-Year Assessment. The Mathematics PBA and EOY each contain one session to be administered in 80 or 90 minutes (dependent upon the test) and one session designed to be administered in 75 minutes. Unlike the MCAS test sessions which are untimed, PARCC test sessions are timed. So that all students have an opportunity to complete the test, each test session is scheduled for approximately 50% more time than the estimated time that it will take most students to complete the test. For example, a test session estimated to be completed by a

majority of students in 60 minutes may be scheduled as a 90 minute session.⁸

The inclusion of a performance-based assessment (PBA) on every English Language Arts/Literacy and Mathematics test at every grade level is a defining feature of the PARCC assessments. The performance-based assessment will be administered approximately three-fourths of the way through the school year and are designed to allow students to demonstrate problem-solving and other higher level cognitive skills. As described by PARCC the PBA in English Language Arts/literacy and Mathematics will require students at each grade level to produce complex responses:

- In English Language Arts/Literacy, this will involve analyzing literature and a narrative writing task. Students will read texts and write several pieces to demonstrate they can read and understand sufficiently complex texts independently; write effectively when using and analyzing sources; and build and communicate knowledge by integrating, comparing and synthesizing ideas.
- In mathematics, students solve multi-step problems that require reasoning and address real world situations. This requires students to use

mathematical reasoning, make sense of quantities and their relationships to solve real-world problems, and show their understanding.

Results from the performance-based assessment will be combined with the end-of-year assessment administered closer to the end of the school year to determine an overall score and achievement level for each student.

Samples and complete descriptions of PARCC tasks and items from both the performance-based assessment and end-of-year assessment can be found on the PARCC website at <http://www.parcconline.org/samples/item-task-prototypes>.

PARCC SUMMARY

The series of ninth through eleventh grade high school tests will enable PARCC to assess a wide depth and breadth of content.

⁸ Time estimates are based on feedback from the 2014 PARCC Field Test.

SUMMARY OF FINDINGS

Does the test contain the right content to measure college- and career-readiness?

MCAS

The content of the MCAS high school tests is limited to what can be assessed on a single test administered at the end of tenth grade.

- MCAS tests high school students only one time at the end of the tenth grade.
- MCAS high school tests measure content no higher than the end of tenth grade standards.
- A large proportion of the items on recent MCAS tenth grade Mathematics tests measure sixth, seventh, or eighth grade standards.
- The tenth grade MCAS Composition test measures only one type of writing, literary analysis, and requires students to produce only one written composition.
- The tenth grade MCAS Reading test contains a mix of literary and informational passages with approximately half of the total points on the test coming from each type of passage.

PARCC

The series of ninth through eleventh grade high school tests will enable PARCC to assess a wide depth and breadth of content.

PARCC will test high school students three times, once per year in the ninth, tenth, and eleventh grades.

- To earn college- and career-ready designations in English Language Arts/Literacy and Mathematics, students will have to take and be successful on the eleventh grade tests.
- The PARCC mathematics tests will require students to apply skills, concepts, and understandings to solve multi-step problems requiring abstract reasoning, precision, perseverance, and strategic use of tools.
- The PARCC English Language Arts/Literacy tests will require students to produce a variety of types of writing. PARCC will require students to write effectively when analyzing literary and informational text.
- The PARCC English Language Arts/Literacy test will be more heavily weighted toward informational than literacy passages, as indicated in the Common Core.

DO THE ELEMENTARY AND MIDDLE SCHOOL TESTS PROVIDE GOOD INFORMATION ABOUT STUDENT PROGRESS TOWARD COLLEGE- AND CAREER-READINESS?

THIS QUESTION FOCUSES ON THE ENTIRE SYSTEM OF TESTS AT GRADES THREE THROUGH HIGH SCHOOL. To provide useful feedback to students and parents and to support improvement efforts of educators and policy makers, the assessments at each grade level must produce detailed information about student performance, information tied directly to student achievement of the content standards at that grade level. The tests must also provide coherent information across grade levels about how students are progressing toward college- and career-readiness – are they on track to be college- and career-ready in high school.

MCAS

The MCAS English Language Arts and Mathematics tests across grades 3 through 10 were added to the assessment program at different times between 1998 and 2006 and were added for different purposes.

- 1998
 - › MCAS includes tests at grades 4, 8, and 10.
- 2001
 - › The Massachusetts Grade 3 Reading Test with a focus on basic literacy is incorporated into MCAS.
 - › The Grade 8 English Language Arts test is moved to grade 7 to ease the burden of testing at grade 8.
 - › The Grade 6 Mathematics test is added to MCAS “to help monitor the apparent decline in statewide mathematics performance from grade 4 to grade 8.”
- 2006
 - › Additional tests are added to MCAS at grades 3, 5, 6, and 8 to meet the requirements of No Child Left Behind.

Consequently, as described below, there are some key differences across grade levels that to some degree make MCAS more of a patchwork of tests than a coherent assessment system.

ENGLISH LANGUAGE ARTS INCLUDES WRITING ONLY AT GRADES 4, 7, AND 10

Although Writing is a key component of the Curriculum Frameworks at every grade level, it is assessed on MCAS only at three grade levels: four, seven, and ten. At all other grade levels, only the English Language Arts standards related to Reading are assessed on MCAS.

In addition, the Curriculum Frameworks require students at each grade level to demonstrate proficiency with a variety of modes of writing for different purposes and audiences. However, because the MCAS Composition test consists of a single writing prompt, it measures only one type of writing on each test.

THERE IS VARIATION IN PROFICIENCY STANDARDS ACROSS GRADE LEVELS

Proficiency standards were set independently for each grade level MCAS test when the test was introduced. That is, when the proficiency standards on the grades 4, 8, and 10 mathematics tests were established in 1998 they were set by separate panels

and there was no discussion of the meaning or connection of those standards across grade levels. The lack of a clear connection in proficiency standards across grade levels makes it more difficult to interpret student results that vary across grades such as the following:

In Mathematics, results consistently show that 80% of students are Proficient at the end of 10th grade, but only 50% of students are Proficient at the end of 8th grade.

- Do those results suggest that a large number of students attain proficiency in the ninth and tenth grade or that the tenth grade achievement standards are less rigorous than the eighth grade standards?

In English Language Arts, there is a steadily increasing percentage of students performing at the Proficient level from 54% at grade 4 to 90% at grade 10.

- Do those results suggest that virtually all students will be Proficient in high school regardless of their performance in grades 3 through 8? Is it acceptable that only half of the students are Proficient in the fourth grade? What are the consequences for student instruction or curriculum evaluation and improvement of such an interpretation of the English Language Arts achievement level results?

In Mathematics, results bounce from nearly 70% Proficient or higher at grade 3 to 50% at grade 4, 60% at grades 5 and 6,

back to 50% at grades 7 and 8, and finally 80% at grade 10.

- Again, do those results reflect real differences in student performance across grade levels or simply differences in the rigor of proficiency expectations across grade levels?

LIMITED INFORMATION IS PROVIDED TO SUPPORT THE INTERPRETATION OF THE ACHIEVEMENT LEVEL RESULTS AT EACH GRADE LEVEL

Individual student performance on the MCAS tests is reported in terms of four achievement levels: *Warning*, *Needs Improvement*, *Proficient*, and *Advanced*. Those achievement levels were established to convey the degree to which students had achieved and were able to apply the knowledge and skills described in the content standards contained in the Massachusetts Curriculum Frameworks. Little information is provided, however, to describe the knowledge and skills that students at each grade level are expected to demonstrate. Rather than grade-specific descriptions of student performance at each grade level, MCAS includes a set of generic descriptions in English Language Arts and Mathematics that apply across grade levels. This information is important, but without corresponding grade-specific descriptions has limited usefulness to parents and educators attempting to interpret results and improve student performance and instruction.

CURRICULUM FRAMEWORKS Text Types and Purposes at Each Grade Level	
Grade 3-5	Grade 6-12
<p>Write opinion pieces on topics or texts, supporting a point of view with reasons and information*.</p> <p>Write informative/explanatory texts to examine a topic and convey ideas and information clearly</p> <p>Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.</p> <p><i>*and information added at grades 4-5.</i></p>	<p>Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.</p> <p>Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p>Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.</p>

Examples of the MCAS content area descriptions of Proficient performance are provided below.

In English language arts, the type of knowledge and skills expected of a student at the Proficient level are:

Language/Vocabulary

- demonstrates a solid reading vocabulary and general understanding of word parts and word relationships (e.g., prefixes, roots, suffixes, synonyms, antonyms)

Comprehension

- demonstrates an understanding of many concrete ideas, and most abstract or implied ideas, in grade-appropriate texts
- connects ideas within texts and provides supporting evidence

Text Elements and Techniques

- shows clear understanding of structure and elements of genre and how they support the author's purpose or theme
- identifies more subtle examples of techniques authors use in a variety of grade-appropriate texts (e.g., repetition, exaggeration, and figurative language)

Composition

- writes well-organized compositions with logically developed ideas, adequate detail, and clear focus
- engages reader's interest through use of a variety of language choices and sentence structures

Writing Conventions

- writes compositions with solid control of the standard English conventions of grammar, spelling, punctuation, and usage

In mathematics, the type of knowledge and skills expected of a student at the Proficient level are:

Conceptual Understanding and Procedural Knowledge

- demonstrates solid understanding of the numeration system
- performs most calculations and estimations
- defines concepts and generates examples and counterexamples of concepts
- represents data and mathematical relationships in multiple forms (e.g., equations, graphs)

Problem Solving

- applies learned procedures and mathematical concepts to solve a variety of problems, including multi-step problems

Mathematical Reasoning

- uses a variety of reasoning methods to solve problems
- explains steps and procedures

Mathematics Communication

- uses various forms of representation (e.g., text, graphs, symbols) to illustrate steps to a solution

MCAS SUMMARY

There is a lack of consistency in the structure of the MCAS tests across grade levels; and Proficient performance was defined separately and at different times across grade levels.

PARCC

PARCC is being designed and developed as a coherent system of assessments across grades three through eleven. The process of ensuring that the tests measure a clear progression of knowledge and skills across grade levels is facilitated by two key factors:

- The tests are aligned to the Common Core State Standards, which were designed to reflect a clear progression of knowledge and skills across grade levels.
- The grade three through eleven tests are being designed and developed jointly.

Of course, simply developing the grade three through eleven tests at the same time is not enough to ensure that they form a coherent system across grade levels. Three critical features of the PARCC design and development process intended to ensure consistency across grade levels are described below.

ENGLISH LANGUAGE ARTS/ LITERACY INCLUDES WRITING AT EVERY GRADE LEVEL

PARCC tests are being designed to cover the depth and breadth of the content standards at each grade level. The PARCC English Language Arts/Literacy will measure Writing standards as well as Reading standards at each grade level. In addition, the PARCC tests will require students to produce multiple types of writing at each grade level, including writing across the disciplines of science and social studies and writing in response to research simulations that require students to compare and synthesize ideas across a range of informational sources (PARCC, 2014).

There is coherence between the High School and Grade 3-8 achievement levels

Like the content of the PARCC tests across grade levels, PARCC plans to ensure that the PARCC achievement levels provide coherent information about student performance across grade levels. At each grade level, the achievement levels will be established to describe the extent to which students have attained the knowledge and skills required at that grade level and are on track to college- and career-readiness at grade 11.

The proficiency standards will be established for all grade levels in 2015 following the first full-scale administration of the PARCC tests.

Detailed descriptions of student performance are provided for each grade level

For each grade level and content area test, PARCC has developed a detailed set of performance level descriptors (PLD). These include descriptions of the content and skills students should be able to demonstrate at each achievement level for each of the major content categories or clusters of standards at each grade level. An excerpt from the grade 6 Mathematics PLD is provided on the following page.

PERFORMANCE LEVEL DESCRIPTORS – GRADE 6 MATHEMATICS

PERFORMANCE LEVEL DESCRIPTORS – GRADE 6 MATHEMATICS				
<h3 style="color: #008080;">Grade 6 Math: Sub-Claim A</h3> <p style="text-align: center;">The student solves problems involving the Major Content for grade/course with connections to the Standards for Mathematical Practice</p>				
	Level 5: Distinguished Command	Level 4: Strong Command	Level 3: Moderate Command	Level 2: Partial Command
Multiplying and Dividing with Fractions 6.NS.1-2	Applies and extends previous understandings of multiplication and division to create and solve word problems involving division of fractions by fractions.	Applies and extends previous understandings of multiplication and division to solve word problems involving division of fractions by fractions.	Applies and extends previous understandings of multiplication and division to divide fractions with unlike denominators and solve word problems with prompting embedded within the problem.	Applies and extends previous understandings of multiplication and division to divide fractions with common denominators and to solve word problems with prompting embedded within the problem.
Ratios 6.RP.1 6.RP.2 6.RP.3a 6.RP.3b 6.RP.3c-1 6.RP.3c-2 6.RP.3d	<p>Uses ratio and rate reasoning to solve real-world and mathematical problems, including ratio, unit rate, percent and unit conversion problems.</p> <p>Uses and connects a variety of representations and strategies to solve these problems.</p> <p>Finds missing values in tables and plots values on the coordinate plane.</p>	<p>Uses ratio and rate reasoning to solve real-world and mathematical problems, including ratio, unit rate, percent and unit conversion problems.</p> <p>Uses a variety of representations and strategies to solve these problems.</p> <p>Finds missing values in tables and plots values on the coordinate plane.</p>	<p>Uses ratio and rate reasoning to solve real-world and mathematical problems, including ratio, unit rate, percent and unit conversion problems.</p> <p>Uses a limited variety of representations and strategies to solve these problems.</p> <p>Finds missing values in tables and plots values on the coordinate plane.</p>	<p>Uses ratio and rate reasoning to solve mathematical problems, including ratio, unit rate, percent and unit conversion problems.</p> <p>Uses a limited variety of representations and strategies to solve these problems.</p> <p>Finds missing values in tables and plots values on the coordinate plane.</p>

PARCC SUMMARY

The PARCC tests will have a consistent design across grade levels, and results at each grade level are intended to signal whether students are on track to college- and career readiness.

SUMMARY OF FINDINGS

Do the elementary and middle school tests provide good information about student progress toward college- and career-readiness?

MCAS

There is a lack of consistency in the structure of the MCAS tests across grade levels; and Proficient performance was defined separately and at different times across grade levels.

- Across grades three through ten, MCAS is a patchwork of tests introduced at different times and for different purposes from 1998 through 2006.
- In English language arts, the MCAS tests include writing at only grades four, seven, and ten.
- Proficiency standards for the MCAS tests at grades three through eight were established independently from the high school standards and independently from each other at different times between 1998 and 2006.

English Language Arts

Grade 10 – 1998

Grades 3, 4 and 7 – 2001

Grades 5, 6, and 8 – 2006

Mathematics

Grades 4, 8, and 10 – 1998

Grade 6 – 2001

Grades 3, 5, and 7 – 2006

- Limited information is available to support the interpretation of MCAS proficiency results at grades 3 through 8 in relation to the content standards in the Curriculum Frameworks.

PARCC

The PARCC tests will have a consistent design across grade levels and results at each grade level are intended to signal whether students are on track to college- and career readiness.

- The PARCC tests at grades three through eleven are being developed and implemented together as a complete system of assessments.
- The PARCC English Language Arts/Literacy test will assess writing at every grade level.
- The college- and career-ready (grade 11) or on-track to college and career-ready (grades 3-10) standards for the PARCC tests will be established at the same time, with careful attention paid to the consistency of standards across grade levels.
- PARCC has prepared detailed descriptions of the content knowledge and skills expected of students performing at each achievement level on each of the grade 3 through 8 tests.

CONCLUSIONS

THE PURPOSE OF THIS REPORT WAS TO COMPARE MCAS AND PARCC TESTS AS INDICATORS of college- and career-readiness to inform Massachusetts stakeholders and the decision to be made by the Massachusetts Board of Elementary and Secondary Education on the future of state assessment in Massachusetts. To do that, we asked three questions about each assessment program:

- *Does the test identify students who are college- and career-ready?*
- *Does the test contain the right content to measure college- and career-readiness?*
- *Do the elementary and middle school tests provide good information about student progress toward college- and career-readiness?*

For MCAS, our answer to each of the questions is a clear “No.” The current MCAS high school tests do not identify students who are college- and career-ready, and they do not contain the right content to measure college- and career-readiness. Across the entire program, MCAS provides limited information about the content and skills demonstrated by students performing at each achievement level, and it is difficult to interpret differences in achievement level results from one grade to the next.

For PARCC, our answer to each of the questions is a cautious and conditional “Yes.” As we are preparing this report in early 2015, the PARCC tests hold the promise of being a good indicator of college- and career-readiness, but it is not possible to know how much of that promise will be fulfilled.

- PARCC has laid the groundwork for establishing achievement levels that ensure that students who are classified as college- and career-ready are actually prepared to enroll in credit-bearing courses in college. Until those achievement levels are set, however, we will not know how well the

test distinguishes between students who are college- and career-ready and those who are not.

- PARCC high school items and tests are designed to assess college- and career-ready standards, but a definitive judgment about the content of the PARCC tests must wait until actual tests have been constructed and reviewed.
- The entire PARCC system from grades 3 through 11 is being designed to provide solid, detailed information about student performance to parents, students, and educators. That information includes not only details about the knowledge and skills that students demonstrate at each grade level, but also information on how students are progressing toward college- and career-readiness. Until PARCC releases results and interpretive materials, however, we will not know how useful that information is for parents, educators, and policy makers.

By the time the Board comes together in the fall of 2015 to make their decision, they will have much more information about how well PARCC has implemented their plans:

- In spring 2015, the Thomas B. Fordham Institute and the Human Resources Research Organization (HumRRo) will conduct a full-scale evaluation of how well aligned PARCC, MCAS, and other national assessments are to the Common Core State Standards and the extent to which they meet the criteria for high-quality assessments established by the Council of Chief State School Officers (CCSSO).

- By summer 2015, the first full-scale administration of the PARCC tests will be complete, providing the opportunity to collect valuable feedback about the test and the test experience from students and educators in Massachusetts as well as from other states across the country.
- In fall 2015, initial PARCC results will be released. This will provide the opportunity for comparisons between student performance on PARCC and MCAS, between the performance of Massachusetts and other states on PARCC, and between the performance of Massachusetts on PARCC and other national assessments such as NAEP.

Each of those events will yield valuable information to inform the Board's decision.

Throughout this report, we compare the current MCAS tests to the PARCC tests that will be administered for the first time in Spring 2015 as indicators of college and career readiness. That is a relevant and important comparison because it informs stakeholders and the decision that the Board will be making next fall when they choose the future direction of state assessment in Massachusetts. As a final point, however, we want to offer the caveat that this comparison is based on current information for the two assessments only. It does not address the question of whether the PARCC tests are a better gauge of college- and career-readiness than new tests that Massachusetts could develop on its own.

The current MCAS tests were designed in the mid- to late-1990s. Features that are emblematic of MCAS represented the state-of-the-art in assessment technology when they were introduced in 1998:

- Including a mix of multiple-choice items and items that required students to produce written responses to items on all tests;
- On the Composition test, providing students the opportunity to write a first draft of their essay before preparing the final version to be scored;
- Providing virtually unlimited time for students to complete each test session; and
- Releasing all items on all tests each year for the first nine years of the program, and continuing to release half of items in subsequent years.

For every one of those visible features, there was a corresponding behind-the-scenes design and technical feature that was also state-of-the-art in the 1990s.

In assessment, as in other fields, however, time marches on. MCAS, however, remains virtually

unchanged since the administration of the first MCAS tests in 1998. To be sure, there have been upgrades and tweaks to the assessment system since then, as well as refinements to the content to keep up with revisions to the state's Curriculum Frameworks. But those have been incremental changes moving MCAS from Version 1.0 to 1.1, 1.2, etc. There has been no effort to build Version 2.0 of MCAS – a new state-of-the-art testing system fully aligned to the 2011 Curriculum Frameworks. Instead, in 2010, the state chose to collaborate with other states in the development of PARCC as its next generation assessment system designed to measure college- and career-readiness. That choice led to the decision that the Board now faces – choosing between the current MCAS tests and PARCC. ◆

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This analysis has given us an understanding of the purpose and design of the MCAS and PARCC assessments, and how these compare as college and career readiness indicators. The conclusions are clear – MCAS is an outdated assessment that was not intended to measure college and career readiness and is not a tool to do that. The PARCC assessments are being created for that purpose and currently appear to be on course to realize that potential.

As the PARCC development process moves ahead, the Department of Elementary and Secondary Education must provide the Board and the public with much more detail about a number of issues. Among these are the following:

Passing Scores – The score set to “pass” the exam, often referred to as “cut scores,” must be set at a high enough level to truly align with college and career readiness expectations. Although there may be resistance to setting a cut score that reveals student performance inconsistent with results on MCAS, we must endure that transition and help the public understand the need for this adjustment. If we are going to be honest about whether our students are on track for success, and reduce the remediation rates that cost our students and education system time and money, an accurate cut score is necessary.

Cost – There are legitimate concerns from school districts and others about how the expense of new assessments will compare to MCAS costs. The exact price for next year and cost estimates for the future must be provided.

Time on Testing – Employers, educators and parents have expressed concerns about the time devoted to test preparation and administration. Among the concerns is that testing consumes a disproportionate amount of learning time, making it difficult to schedule other subjects and activities that are important to developing the range of knowledge and skills that students need. Although test preparation decisions are made locally and vary widely, this is a fundamental issue that must be addressed.

There are other important concerns that also require complete and detailed responses. How will data be used and shared with educators and families? What assurances can be given that the state will determine that standards have been fully implemented, so students are being tested on what they have been taught, before new assessments are used to meet graduation requirements? How will revisions and updates be handled in the future? Will individual states be able to adapt the assessments or will the PARCC consortium regularly convene collaborative reviews? Additional questions are likely to arise in the months ahead. MBAE offers the conclusions of this report as one step in the process of ensuring that Massachusetts has the high quality assessments our students and citizens deserve.

— MASSACHUSETTS BUSINESS ALLIANCE FOR EDUCATION

ACKNOWLEDGEMENTS

MBAE is grateful to the staff of The Center for Assessment for helping us understand the complex issues related to academic assessments and making the implications of this information for policy decisions comprehensible. We appreciate the work of Project Director Scott Marion, Ph.D., Associate Director, Center for Assessment and project staff Charles DePascale, Ph.D., Senior Associate; Brian Gong, Ph.D., Executive Director; and Thanos Patelis,

Ph.D., Senior Associate. We also appreciate the assistance of Carrie Conaway, Associate Commissioner for Planning, Research, and Delivery Systems at the Massachusetts Department of Elementary and Secondary Education for reviewing drafts for errors of fact. MBAE also thanks Ann Duffy, Senior Consultant at Education First for her guidance, expertise and assistance. This work was made possible by a grant from Rockefeller Philanthropy Advisors ♦

ABOUT MBAE'S WORK

In 2014, the Massachusetts Business Alliance for Education (MBAE) commissioned a review of Massachusetts's education system that sounded the alarm: student achievement has levelled off and the state risks falling behind global competitors who are outpacing the Commonwealth in educating a highly skilled workforce and informed, engaged citizens. The state's knowledge-based and innovation economy depends on an urgent response to the challenges outlined in the report. "*The New Opportunity to Lead: A Vision for Education in Massachusetts in the Next 20 Years*," lays out a comprehensive plan to make Massachusetts the best education system in the world. Drawing on experience from playing an instrumental role in bringing about major education reforms twenty years ago, MBAE is committed to driving the policy changes needed to achieve this goal.

Over the next several years, MBAE will translate The New Opportunity to Lead proposal into action that can lead to reinvention of the school and classroom, support for effective teachers and school leaders, personalized learning to close opportunity gaps, and funding focused on the students in schools with the autonomy to use it most productively. A key recommendation in the report is that Massachusetts strengthen the implementation of world class education "standards, curriculum, and assessment to ensure all students develop what is needed for success." This report was commissioned to inform that effort.



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