THE NATIONAL CENTER FOR PUBLIC POLICY AND HIGHER EDUCATION

Policy Alert

March 2008

MIXED SIGNALS IN CALIFORNIA

A MISMATCH BETWEEN HIGH SCHOOLS AND COMMUNITY COLLEGES

QUICK LOOK …

Central Questions

Are high school juniors academically prepared to succeed in certificate and degree programs at a community college? Do the high school exams taken by students match the academic rigor of the community college placement exams that determine if students are academically prepared for college-level work?

Why K–12 and Community College Math and English Standards and Tests Matter

How well does high school prepare students to undertake college-level work? If students are not taught or assessed for college readiness in math and English, can they be expected to succeed at community colleges? In the absence of explicit college readiness standards in English and math, how will high school teachers know if students are prepared?

Key Findings

In English language arts, the placement exams given by the California community colleges that were the most common standardized tests and the tests given to high school juniors are fairly well matched in terms of academic rigor. In other words, students who score well on the high school exam in English should be academically prepared for their credential and degree programs at a California community college.

In math, however, there are substantial gaps between the high school exams and the community college placement tests. In other words, students who take and score well on the high school exams in math might not be fully prepared for the academic rigor of math classes taught in their certificate or degree programs at a community college.

Key Recommendations

Education and policy leaders in California should develop a statewide approach to community college placement so that all high school students receive clear signals about what it takes to succeed at a California community college.

INTRODUCTION

Many students who enroll in California's community colleges are not academically prepared to undertake college-level courses that would be counted toward a bachelor's degree at a four-year college. The consequences include:

- ★ High proportions of students start out in remedial levels of math and reading courses and have limited probability of attempting transfer-level courses at community colleges.
- ★ The majority of first-time students start out in mathematics and reading courses for which they will not receive credit at a California State University or University of California campus if and when they choose to transfer.

MORE INFORMATION

These findings are based on the recent report, *Investigating the Alignment of High School and Community College Assessments in California*, by Richard S. Brown and David N. Niemi, and are informed by a national advisory committee. The James Irvine Foundation was the principal funder of the study. The full report is available at www.highereducation.org/reports/brown_niemi/index.shtml.

Recommendations for this *Policy Alert* were developed by the National Center for Public Policy and Higher Education.

CALIFORNIA STATE UNIVERSITY ADDRESSES THE ISSUE OF COLLEGE READINESS

In 2001, California State University (CSU) faculty began to develop math and English items to add to the California Standards Tests (CST) that all public high school students take in their junior year. The tests had been designed to help high schools assess their own programs, but they did not predict college success. Augmented versions of the tests were produced to address this issue.

The augmented CSTs were developed as part of the Early Assessment Program (EAP)—a collaborative effort among the State Board of Education, the California Department of Education, and CSU. The program was designed to determine high school students' readiness to do college-level work in English language arts and math, to provide students opportunities to improve skills during their senior year, and to align the CSU placement standards and the K–12 standards in these subjects.

The augmented CSTs in mathematics include fifteen additional questions designed to measure deeper understanding of higher-level math. The augmented CST in English language arts also contains 15 additional questions, plus a 45-minute essay. These portions of the CSTs are voluntary. Both the math and English tests measure proficiency in areas covered by the state standards. In English, for example, a student must be able to read a passage and understand what is being expressed in a more than superficial way.

Students who pass the augmented English test are exempted from the CSU placement exam that all entering freshmen must take. If they do not pass the test, they are advised to take specific courses during their senior year in high school.

On the math test, there are three possible results: Students who pass are exempted from the CSU math placement exam; those with marginal scores may receive a conditional exemption, requiring them to pass an approved senior-year course; students who do poorly on the CST in their junior year are advised to take another math class. They take the math placement test the summer before they start college to determine whether they will need a remedial course once on campus.

In spring 2006, 158,000 juniors (38% of the total) completed the English EAP, and 25% were judged ready for college work, while 134,000 juniors (72% of the total eligible) completed the math EAP, and 55% were judged ready for college work. Of the approximately 40,000 freshmen admitted to CSU each year, more than 60% need remediation in math, English, or both.

- ★ One out of every three students in a California community college enrolls in a basic skills class, and many more place into basic skills courses on the basis of assessment results but elect not to enroll in them.

Better alignment of high school coursework and assessment could greatly reduce the need for remedial education in California community colleges. It could also improve rates of transfer, and associate's and bachelor's degree completion. This would, however, require that the content taught by high schools, and the tests used by high schools to assess student mastery of that content, encompass and emphasize the knowledge and skills required for college-level work. This report is derived from a 2007 research study by Richard S. Brown and David N. Niemi[1] which analyzed one key aspect of that issue: the alignment of the content tested in California's junior year high school examinations with that of placement tests used by community colleges to determine student readiness for college-level work in math and English.

The open admissions policy of the California Community Colleges system provides only for admission to the colleges—not necessarily to college-level courses. Once students enroll in the colleges, placement tests assess their readiness to undertake college-level coursework, or their need for remedial courses. Studies have demonstrated that high school graduates who intend to engage in collegiate work for transfer or to earn bachelor's degrees should have acquired the knowledge and skills assessed by placement tests while they were in high school.

A core question, then, is whether high schools and community colleges share a common understanding of the knowledge and skills required for college-level courses.

[1] Richard S. Brown and David N. Niemi, *Investigating the Alignment of High School and Community College Assessments in California* (San Jose: National Center for Public Policy and Higher Education, 2007).

It is reasonable to expect that such understandings would be reflected in the testing and assessment practices of high schools and community colleges, so that success in mastering the requisite content at one level—high school—would prepare students for the next level—the community colleges.

Alignment or consistency of high school and college expectations through examinations is a key condition for making standards of knowledge and skills required for college readiness explicit. Aligned high school and college placement assessments can help provide clarity to high schools and teachers about what must be taught, and to high school students and parents about what must be learned. Poor alignment contributes to confusion about expectations for college-level coursework, to poor college preparation, and to the need for remediation.

Although California high schools administer statewide assessments, each of the 109 community college campuses determines for itself which placement exams to use, subject to approval by the state Chancellor's Office. The Chancellor's Office Web site reports that 94 assessments were administered to students in the 2005–06 academic year, and more are on the list approved by the Chancellor's Office for use as placement instruments. In their research study, Brown and Niemi observed:

> This reflects the tremendous variability of placement testing practices. Three dozen second-party assessments gained approval, while more than 100 other approved tests are listed as "locally developed and locally managed assessment instruments." Such variety yields inconsistency throughout the community college system not only in test content but also in levels of expected proficiency within a given subject area domain. Thus, it is unsurprising that students leaving high school for the community college campus are unaware of what it takes to be prepared for college-level coursework.

The California community colleges' use of local community college standards and assessments predates the current statewide high school standards and assessments.

THE STUDY

The purpose of the research study by Brown and Niemi was to determine the extent to which tests used for placement by community colleges match the content that California high school students are expected to master—that is, the degree of content alignment between the de facto standards needed for community college preparedness as measured by the plethora of placement exams in use across the state and the standards measured by California Standards Tests (CST) and the augmented CSTs used in California high schools (see sidebar on page 2).

"Do high schools and community colleges share a common understanding of the knowledge and skills required for college-level courses?"

The study was conducted in two phases. The first identified the core content of community college placement objectives by analyzing the content of the sixteen most widely used community college placement examinations in English language arts and mathematics. The second phase compared the results of phase one with the content addressed by the augmented CSTs in mathematics and English language arts developed by the California Department of Education, the State Board of Education, and the California State University system (CSU). The augmented tests include questions designed to determine if high school students are ready to enroll in college-level courses at CSU. The analyses of content and the comparisons of the high school and community college exams were conducted by subject matter experts from community college and university faculties with experience in high school assessments, or direct involvement in teaching entry-level community college courses.

"Poor alignment between high school and college expectations contributes to confusion about the requirements for college-level coursework, to poor college preparation, and to the need for remediation."

Placement Testing in the Community Colleges

In 2005–06, more than one million students, ages 18 to 24, enrolled in for-credit courses in a community college

in California. Most were advised to take placement tests, but more than 40% of those directed to placement tests did not do so because placement testing is not mandatory (see Table 1).

California has adopted statewide assessments for high school students in math and English language arts, as noted above, but the traditions and history of the California Community Colleges system favors local attempts to solve problems, even when they are statewide. Several of the placement exams were given to more than 100,000 students each, while other tests were presented to only a handful of students. Some of the assessments were commercially developed, while others were locally designed. In addition, the tests vary substantially in the strength of their technical properties (that is, in the extent to which they measure what they purport to measure).

The most commonly used assessments are commercially developed, including the Accuplacer Computerized Placement Tests (CPT) by the College Board, and the Computer-Adaptive Placement Assessment and Support System (COMPASS) tests developed by American College Testing (ACT). These two programs account for more than half of all placement testing in the California community colleges. Other tests in widespread use include: the Math Diagnostic Testing Program (MDTP), originally developed by faculty from the University of California (UC) and CSU; and the California Test for English Placement (CTEP), which was developed by California community college faculty.

What is tested, and what constitutes preparedness for courses in certificate and degree programs, varies substantially from college to college, even within the same community college district. For example, American River College in Sacramento has developed an "informed self-placement" program that provides information, including self-testing instruments, to help students assess their readiness for college-level academic work. (For more information about informed self-placement at American River College, see www.highereducation.org/reports/arc/index.shtml.) But American River College's sister institutions in the Los Rios Community College District—Cosumnes River College, Folsom Lake College, and Sacramento City College—use other exams for student placement.

Students with limited English language skills face unique placement challenges. In many colleges these students take placement tests in English as a Second Language (ESL), rather than being tested in the regular

Table 1

Use of Community College Placement Services

	Number of Students
Enrolled in Credit-Bearing Courses	1,050,000
Exempted from Placement Testing	235,000
Directed to Placement Testing	815,000
Did Not Receive Placement Testing	340,000
Received Placement Testing	475,000

Notes: : This table represents assessment services for placement provided to students ages 18 to 24 who were enrolled during the 2005–06 academic year, including ESL students. These services may have been provided at any time during their college career, up to and including 2005–06.

Source: Brown and Niemi, *Investigating the Alignment of High School and Community College Assessments in California* (San Jose: National Center for Public Policy and Higher Education, 2007).

placement-testing program. Those taking the ESL exam are placed in one of several remedial ESL courses. Many of these students do not return to the regular placement-testing program or enroll in credit-bearing courses.[2]

Student Assessment in California High Schools

California has established statewide standards in math and English language arts for high school. During their junior year, students take statewide exams to determine how well they are meeting these academic standards. Students who pass the optional augmented versions of these exams are exempted from taking remedial education courses at CSU.

There is one CST in English language arts, with an augmented version that includes a 45-minute writing section and 15 additional items to assess greater depth and complexity in critical reading and writing.

In mathematics, on the other hand, there is no single exam for all students. Students take a statewide end-of-course exam for the highest level of math they have completed. There are CSTs in Algebra 2 and summative mathematics[3], and there are augmented versions of both exams that include additional items in Algebra 2 and geometry.

Students who have not reached Algebra 2 or summative math can take the statewide end-of-course test in Algebra 1, geometry, or other areas.

Unfortunately, many students do not reach the advanced course levels. In 2006, only about 6% of high school students took summative mathematics, and 12% took Algebra 2, the courses critical for college readiness. Most of the students tested took Algebra 1, geometry, or general mathematics.

Furthermore, the students who did take the advanced math exams did not perform very well. Less than half of those who took the summative mathematics test, and only 25% of those taking the Algebra 2 test, performed at the proficient level or higher.

RESEARCH FINDINGS

In this study, researchers compared the standards embedded in the community college placement exams with the standards measured by the augmented 11th grade CSTs in English language arts and mathematics.

English Language Arts

In English language arts, the study found that the placement tests most widely administered by the community colleges were comparable to those given by the high schools in what they require from students. Specifically, language skills such as sentence structure, grammar, syntax and usage, punctuation, organization, and style are well-represented on the high school tests, as are reading skills like vocabulary, comprehension, main ideas, supporting ideas, and inferences. And these skills are tested similarly on the community college placement exams.

Mathematics

In mathematics, however, the study found that there are significant gaps between the CSTs and the community college placement exams, suggesting that more work needs to be done to make these exams more comparable. Researchers found consistency on some mathematical concepts, such as algebraic expressions and operations, equations and word problems, and geometry. However, they found inconsistency in other basic mathematical concepts, such as whole numbers, fractions, decimals, and percentages. There were also inconsistencies between the exams in higher-level mathematical functions such as trigonometry. Some content areas tested for on community college placement exams, including concepts that determine whether or not students are college-ready, are not found on the high school exams in Algebra 2 or summative mathematics.

POLICY IMPLICATIONS AND NEXT STEPS

The National Center for Public Policy and Higher Education has reviewed the research, with the

[2] G. C. Bunch, "English Learners, Language Policy, and Transitions to Higher Education," progress report to UC ACCORD, August 2006.

[3] The summative mathematics exam includes questions related to Algebra 1 and 2, geometry, and probability and statistics.

Cal-PASS Works to Improve Student Transition and Success

The California Partnership for Achieving Student Success, or Cal-PASS, is a voluntary consortium of educational institutions committed to reducing barriers to successful student transitions in all levels of education. Institutions, on a regional basis, join Cal-PASS as a consortium dedicated to working together. Data are submitted to Cal-PASS by each institution or district in the consortium and are analyzed by Cal-PASS staff. The analyses are reviewed by advisory groups from all three public segments of higher education in California. These data and curricula materials are examined to determine the degree of curricula continuity and alignment among segments. Once a problem is pinpointed, members develop an innovation designed to remediate the problem. Cal-PASS funds the innovation and monitors the implementation, and its research staff designs a method to evaluate and assess the efficacy of the innovation. If the innovation proves successful, then plans for expansion are developed by the consortium to affect the greatest number of students across the segments.

assistance of a national advisory panel (see page 7), and believes it raises a series of questions and important policy issues that should be addressed by California policymakers, community colleges, and high schools:

★ *First*, can locally established college placement standards provide the needed clarity and consistency about the knowledge and skills required for college readiness in an era of statewide high school standards and assessments and a highly mobile community college student population? Would the goal of clarity and consistency about college readiness standards—a goal that is shared by community colleges and high schools—be better served by a statewide definition of college readiness standards and community college placement tests that support those standards? Does the current practice of variable standards from one community college to another serve any compelling educational purpose? The issue is not the competence of local campus faculty and administrators to define standards and select placement instruments, but rather what strategy is most likely to stimulate improvement in college preparation for California's high schools.

"The National Center concludes that California's students would be better served by clear, unequivocal, consistent statewide college placement standards and cutoff scores systematically aligned with high school assessments and college placement tests."

On balance, the National Center concludes that California's students would be better served by clear, unequivocal, consistent statewide college placement standards and cutoff scores systematically aligned with high school assessments and college placement tests.

Even in the area of English language arts, where the research found considerable alignment between high school and community college assessments, we believe that a statewide approach could send a more straightforward and powerful signal to high schools about college preparedness—a signal that could influence curriculum as well as assessments. California might adopt one of the approaches already widely in use, such as the augmented CST, or one of the commercially developed tests in English language arts.

★ *Second*, the discrepancies between high school mathematics assessments and the community college placement examinations reflect a fundamental lack of agreement about what knowledge and skills constitute college readiness. This mismatch undermines the efforts of California high school students to prepare for college and the effectiveness of California high schools in improving college readiness.

The National Center concludes that leaders from K–12 education, the community colleges, and the California Department of Education must work together to specify what constitutes readiness for college-level math, so that students will understand what level of math is required for success in certificate and degree programs, and in four-year transfer programs. Additionally, it is recommended that

industry leaders be consulted about the mathematics competencies necessary for students entering careers in science or math, and for those who are interested in other careers. Consideration should be given to different cutoff scores for students entering career-technical fields, versus those planning on transferring to a four-year college or university.

Once agreement is reached about what constitutes readiness for community college mathematics, high school assessments and community college placement exams should be aligned.

★ *Third*, alignment between high school assessments and community college placement exams is a necessary, but insufficient, strategy for matching students with appropriate instruction. High school and college testing is only one tool needed to improve student success. Other critical factors that influence preparation and achievement include student aspirations, quality of instruction, and quality of curriculum. For example, high school course tests are less important than the content of courses.

★ *Fourth,* statewide and uniform standards and assessments in English language arts and math, once developed, will require a major statewide *communications campaign* targeted at high schools, high school teachers and counselors, students, and parents, in order to disseminate the college preparedness expectations of the California Community Colleges.

Most students who plan to attend a UC or CSU campus understand that there are clear requirements they must meet. For example, high school students who are interested in UC or CSU are typically advised by teachers, counselors, or parents to take the A–G college preparatory curriculum in high school, to take and score well on college entrance exams, and to enroll in honors and Advanced Placement classes. Students who plan to attend a community college need a similarly clear presentation of the requirements, not for admission, but for college-level coursework.

Additionally, the state, the community colleges, and private foundations should support the initiatives in this area, particularly those programs that stimulate and sustain public school and college faculty involvement and participation in aligning and strengthening instruction, and in developing and sharing data to improve student

success. Pilot programs, such as those sponsored by the California Partnership for Achieving Student Success, or Cal-PASS (see sidebar on page 6), could be supported to draw together high school teachers and community college faculty in developing effective instructional materials in English language arts and mathematics.

★ *Fifth*, far too many students receive no placement testing at all. All entering community college students should be assessed to determine their readiness for college-level work.

CONCLUSION

As California's workforce and economy demand more educated workers over the next decade, the state's ability to maintain or increase the educational attainment of its population will depend heavily on its gateway institutions to higher education: the California Community Colleges. High school students need to understand that being admitted to a community college is not the same as being prepared academically to succeed in college-level courses. The state chancellor's strategic plan for the community colleges recognizes the importance of linking high school assessments and community college placement exams. It is time to advance an educational agenda that is both statewide and systematic in its approach—to improve student success and increase the educational attainment of California's population.

THE NATIONAL CENTER FOR PUBLIC POLICY AND HIGHER EDUCATION

The National Center for Public Policy and Higher Education promotes public policies that enhance Americans' opportunities to pursue and achieve high-quality education and training beyond high school. As an independent, nonprofit, nonpartisan organization, the National Center prepares action-oriented analyses of pressing policy issues facing the states and the nation regarding opportunity and achievement in higher education—including two- and four-year, public and private, for-profit and nonprofit institutions. The National Center communicates performance results and key findings to the public, to civic, business, and higher education leaders, and to state and federal leaders who are in positions to improve higher education policy.

Established in 1998, the National Center is not affiliated with any institution of higher education, with any political party, or with any government agency.

152 North Third Street, Suite 705, San Jose, CA 95112. Telephone:
408-271-2699. FAX: 408-271-2697
www.highereducation.org