FR-05-43

HumRRO

Human Resources Research Organization

Independent Evaluation of the California High School Exit Examination (CAHSEE): 2005 Evaluation Report

Volume 1

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Prepared for: **California Department of Education**
Sacramento, CA
Contract Number: 00-07

September 30, 2005

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Executive Summary

Independent Evaluation of the California High School Exit Exam

In 1999, the California legislature established the requirement that students pass a graduation exam in English-language arts (ELA) and mathematics beginning with the Class of 2004. Some modifications to the requirement for the California High School Exit Examination (CAHSEE) were passed in 2002. (For more details on the bills establishing this test and the basis for continuing evaluations and reports, including this one, see Chapter 1 of this report.) In July 2003, after the completion of the 2002–03 CAHSEE testing, the Board voted to defer the CAHSEE requirement until 2006.

Over the six years since the CAHSEE was established by law, a wide range of information has been gathered, analyzed, and reported by the Human Resources Research Organization (HumRRO) and others. This report focuses on HumRRO's information and analysis process during Year 6 of the CAHSEE evaluation. The findings have implications for most aspects of the CAHSEE, from the development of the test itself to how it is used and its impact on specific groups of students. Year 6 evaluation activities are reported under the following topics, each of which is summarized briefly here:

- Review of the CAHSEE
- Results from the 2004–05 CAHSEE Administrations
- 2005 Instruction Study
- The trends in Educational Achievement and Persistence During the Era of CAHSEE
- Study of Options for Students Receiving Special Education Services

The final chapter of the Year 6 report includes both a number of general policy recommendations and specific technical recommendations for further improving the CAHSEE and its use. These are presented below.

Review of the CAHSEE Examination

Review of the CAHSEE Test Questions

HumRRO conducted reviews of CAHSEE test questions in 2000, before the first form was developed, and again in 2002 after the first administration of CAHSEE to 10th graders. We conducted a third review of CAHSEE test questions during 2005. The new review addressed two key questions:

- Do new forms of the CAHSEE, after revisions were introduced in 2004, still cover the targeted content standards completely and in sufficient depth?
- Is the CAHSEE fair and accessible to English learners (EL) and students receiving special education services?

The review assessed: (a) the alignment of an intact operational test to the content standards (using Webb's alignment method) and (b) how well the test questions conform to emerging principles of universal design. (See Chapter 2 for a discussion of these principles for designing test questions that are fair and appropriate for all students.)

Key findings with respect to alignment.

ELA

1. Some issues were noted with the depth of knowledge of questions on the ELA test although the overall results showed acceptable alignment.
2. Reviewers wanted to use the essay responses to measure additional or different content standards beyond those in Writing Applications.

Math

3. The depth of knowledge of the math questions matched the test content standards well; the test was not inappropriately easy or difficult.
4. Reviewers had difficulty matching test questions to the mathematical reasoning standards, which was not surprising since all of these questions also assessed content standards in other areas.

Key findings with respect to universal design. In examining the perceived appropriateness of the CAHSEE questions for English learners and students receiving special education services, reviewers had some queries and comments about specific test questions. These were forwarded to CDE and the test developers for their consideration and review. Overall, the current item review process was judged to yield acceptable results.

Recommendations. Several recommendations for continued improvement of the CAHSEE item development process with respect to principles of *universal test design* include the following:

1. Ensure the CAHSEE is designed to optimize access by all groups of students.
2. Extend item-level analyses to include indicators of different problems for students receiving special education services.
3. Make changes to future CAHSEE tests at the whole-test level first.
4. Revisit regularly issues related to alignment between the tests and the California Content Standards.

Review of Psychometric Properties of the Exam

HumRRO conducted independent psychometric analyses of the February 2005 test results as a check on the processes used by the operational test contractor, Educational Testing Service (ETS). We used different software and programming, but reached the same results with respect to both item statistics and overall equating of the test scores.

We also examined the consistency with which the essays were scored in each of the 2004–05 administrations. We found the consistency to be equivalent to, or slightly better than the consistency in scoring essays from prior administrations and concluded that scoring accuracy was sufficient.

Results from the 2004–05 CAHSEE Administrations

All 10th grade students in the Class of 2007 were required to take the CAHSEE for the first time in February, March, or May of 2005. In addition, 11th graders from the Class of 2006 who had not yet passed both parts of the exam were given up to two opportunities to take the CAHSEE in any of the five administrations from September 2004 through May 2005. Detailed analyses of these results are presented in Chapter 3. Key findings are summarized here.

Consistency of Results

The results for 10th graders in the Class of 2007 were very similar to results for 10th graders in the Class of 2006. Passing rates improved slightly for the ELA exam and were about the same for the mathematics exam. Passing rates for different demographic groups were also largely unchanged. Students receiving special education services continued to have considerably more difficulty in passing the CAHSEE than all other groups of students.

Rates of Improvement/Failure

Students in the Class of 2006 who retested as 11th graders showed some improvement in their scores. About half of those testing each part had passed that part by the end of the 11th grade. Conversely, about half of those retested members of the Class of 2006 still have not passed. In addition, some unknown, but possibly large number of students who did not pass in 2004 appears not to have retested in 2005.

The Need for Consistent Statewide Identifiers

Due to the absence of a statewide system of unique student identifiers there were considerable difficulties in estimating the number of students in the Class of 2006 who have now passed both parts of the CAHSEE. Our best estimate is that 78 percent have passed both parts, although the true value could be one or two percentage points higher or lower. The estimated percentage is based on all students in the Class of 2006 who either passed in 2004 or who were still trying to pass during the 2004–05 school year.[1] It excludes students who did not pass in 2004 and were retained in 10th grade, dropped out of school altogether, or did not attempt to retake the exam for some other reason.

[1] CDE estimated passing rates for each subject based on students still trying to pass the CAHSEE in the February, March, and May 2005 administrations. HumRRO's rates also include students who attempted to pass in the September or November 2004 administrations.

Demographic Group Disparities in Passing Rates

There continue to be large disparities in passing rates for specific groups of students. Only 20 percent of 10th graders receiving special education services, 31 percent of English learners, 46 percent of African American students, and 51 percent of Hispanic students passed both parts of the CAHSEE, compared to 65 percent for all students. Estimates of cumulative passing rates through 11th grade for students in the Class of 2006 were 35 percent for students receiving special education services, 51 percent for English learners, 63 percent for African American students, and 68 percent for Hispanic students, compared to 78 percent overall.

Concentration of Lower Passing Rates in Certain Schools

We also examined differences among schools in CAHSEE score levels and passing rates. Minority and disadvantaged students in schools where there were high concentrations of such students had lower passing rates than their counterparts at other schools. We also began to examine models of how student, school, and district level characteristics jointly relate to student scores on the CAHSEE. Additional analyses of these models will be included in our February 2006 biennial report.

The 2005 Instruction Study

In 2003, we conducted a study as required by AB 1609 to determine whether standards-based instruction was sufficient to support the CAHSEE graduation requirement. We conducted a similar study in 2005 to provide updated information on the impact of instruction in preparing students to take the CAHSEE, and on the impact the CAHSEE requirement has had on instruction. The study involved surveys of district and school personnel, district executive summaries of instructional efforts related to the CAHSEE, and more than 500 interviews conducted at a selected sample of high schools and their feeder schools.

Impact of Instruction on CAHSEE

In Chapter 4 we report analysis of district, high school, and feeder school survey and interview responses to determine the impact of instructional trends on success on the CAHSEE. We also compare survey responses between schools with and without relatively high concentrations of at-risk students (i.e., English learners (EL), students receiving special education services (SD), economically disadvantaged, Hispanic, and African American).

Student preparation. We continue to find a substantial proportion of high school teachers reporting that students arrive unprepared for high school courses. Teachers most often cited student motivation, low parental support, and low student attendance as the factors that limit the effectiveness of the courses they teach. This effect was more pronounced for remedial courses than for other courses. Parental support was

rated as a greater problem for required supplemental courses targeted to remediation than for any other course type.

Teacher credentialing. Among those factors that were significantly related to higher CAHSEE pass rates were teacher subject-area credentialing, years of teaching experience, and articulation between the feeder middle school and the high school, as well as coordination between special education and general education staff.

We investigated teacher credentialing and the assignment of subject-area credentialed teachers to courses and students. While three quarters of high schools report that nearly all their teachers hold appropriate credentials, in other schools at least a quarter of the teaching staff remains uncredentialed.

- Over half of schools report using some mathematics teachers with emergency credentials.
- A third of schools report some ELA teachers with emergency credentials.
- While EL students reportedly receive instruction from credentialed teachers at nearly the same rate as all students, students receiving special education services are more likely to receive both ELA and mathematics instruction from a teacher who does not hold a subject-area credential.
- ELA credentialing is lower in schools with high concentrations of African American students.
- Lower percentages of schools with high concentrations of EL, economically disadvantaged, Hispanic, and African American students report math teachers with subject-area credentials than do schools without such high concentrations of at-risk students.

Student readiness for accountability. When interviewed, just over half of general education math and ELA teachers at both high school and feeder school levels stated that the Class of 2006 was ready to be held accountable to the CAHSEE graduation requirement. However, approximately half of special education and EL teachers believe their students are not ready to pass the CAHSEE, although a number stated that students need to be held accountable.

Impact of CAHSEE on Instruction

Increased alignment to standards. Our investigation of trends in California education that may have been influenced by the introduction of the CAHSEE requirement is reported in Chapter 5. Alignment of instruction to California Content Standards has increased steadily over the past several years at both the high school and middle school levels. Efforts are also underway to ensure that the level to which content standards are being taught is consistent across teachers. Nearly all high school and feeder middle school respondents identified one or more systems used to track student proficiency in the content standards.

Content-related professional development for teachers. Most high school and feeder middle school teachers have participated in content-related professional development. Further, schools have focused attention on remedial courses, as evidenced by the fact that assignment of high school teachers to teach remedial courses closely paralleled—and in some cases, exceeded—the education level and years of experience of teachers in related primary courses. High school department heads generally indicated their courses were demanding for students, although some differences were noted in schools with high concentrations of at-risk students.

Identifying/emulating successful programs. Some exemplary programs (e.g., Advancement via Individual Determination (AVID), Student Success Team (SST)) were identified through site visit interviews. These may warrant further targeted evaluation to determine whether they would be effective in additional schools.

Trends in Educational Achievement and Persistence During the Era of CAHSEE

Observed trends in important student outcomes over the past several years may reflect, in part, the far-reaching effects of the CAHSEE requirement for standards-based education and accountability. Since no students have yet been denied a high school diploma by virtue of not passing the CAHSEE, we provide baseline trend information in this report that will be augmented as the CAHSEE requirement takes hold.

Fears of increased attrition not realized

We analyzed enrollment levels, graduation rates, single-year and four-year dropout rates, participation in and performance on college entrance examinations, rates of completion of A–G courses, participation in and success on Advanced Placement (AP) exams, and enrollment rates of California high school graduates as first time freshmen in California college and university systems. One important trend reported previously for the Class of 2004, is that more rather then fewer students are progressing normally from 10th to 11th and 11th to 12th grade for the first high school class subject to the CAHSEE requirement. This trend has continued for the Class of 2006 through 11th grade.

Students' perceptions of CAHSEE

We also inspected student responses to survey items administered with the CAHSEE for indications of trends in preparation for the exam and subsequent plans.

Increasing numbers take test seriously. Compared to the first time test takers in the Class of 2006, higher percentages of students in the Class of 2007 reported (a) perceiving the exam as important, (b) expectations of high school graduation, (c) plans to go to college, and (d) that CAHSEE test questions addressed topics that had been covered in coursework. Responses of students in the Class of 2006 who tested as sophomores (in 2004) and then retested as juniors (in 2005) were matched and compared. In the 2005 administration, these students were more likely to report

perceiving the test as important, expecting to graduate from high school, and reporting they did as well as they could.

Disadvantaged students work harder to prepare. Disadvantaged students or those who did not pass the tests were more likely to (a) perceive the tests as more important to them, (b) make an extra effort besides regular course work to prepare for the tests, (c) indicate that the tests would make their graduating from high school harder, (d) be uncertain about their high school graduation, (e) be nervous when taking the tests, (f) be unfamiliar with the test questions, and (g) report that the test questions were more difficult than regular course work.

Test measures what is taught. A large majority of the ELA and math test takers reported that all or most of the topics included in the test questions were covered in their courses. Students who felt the tests were difficult, most often cited having "forgotten things" they were taught as the reason. About 10 percent of examinees reported that they "did not take the courses that covered these topics" and about 20 percent indicated having trouble with these topics when they were taught. Most test takers indicated that the tests were not more difficult than their course work.

Study of Options for Students Receiving Special Education Services

SB 964, passed in 2004, required a study of options for students receiving special education services who are unable to pass the CAHSEE. The report of this study was released in May 2005 (Rabinowitz et al., 2005). To provide further information on these options, we linked data on the services and programs received in special education programs with CAHSEE outcomes for individual students.

Many Special Education Students Can Pass

Our analyses revealed a strong relationship between the types of special education services a student receives and success on the CAHSEE. About half of the students examined received non-intensive services such as in-class accommodations or a resource specialist, and were able to spend more than 80 percent of their time in regular instruction. About half of these students passed the CAHSEE while still in 10th grade. Students receiving these services who had not passed in the 10th grade showed significant gains when they retested in the 11th grade. It seems likely that, with continued assistance, these students will have a good chance of meeting the CAHSEE requirement. It is thus reasonable to ask that both the schools and these students themselves continue to work to meet the required standards.

More Seriously Disabled Students Require Alternate Goals and Assessments

About one quarter of the students receiving special education services required more intensive assistance. These students participated in regular instruction less than 20 percent of the time, and only about 10 percent of them passed the CAHSEE during the 10th grade. Those who retested in the 11th grade showed only small gains in

CAHSEE scores compared to all other students. These students receive services specified by individualized educational plan (IEP) teams, who have statutory authority for making such judgments. There is no basis for second-guessing the services being provided to these students, although it is important to ask IEP teams to be sure student classifications are appropriate. It is less reasonable to hold these students responsible for mastering the skills assessed by the CAHSEE when they are not receiving instruction related to the skills tested by the exam. Alternate goals and some way of recognizing achievement of these alternate goals are needed for students in this second group.

Better Information and Analysis Required for Some

Another quarter of the students we examined received other combinations of services and showed mixed results on the CAHSEE. More detailed information on the needs of these students and the specific services provided is required to determine which ones have a reasonable chance of meeting the CAHSEE requirement.

Our general conclusion from these results is that it would be a mistake for legislators to impose a single set of alternatives on all students who receive special education services. Students who may be able to master the CAHSEE standards should not be lightly excused from doing so. Other students have little likelihood of mastering the CAHSEE standards and require different goals and options for recognizing accomplishment of these goals.

Recommendations

Policy makers face critical decisions about the CAHSEE as the Class of 2006 nears graduation. As in past years, we offer several general recommendations based on observations and findings from our evaluation activities. These recommendations are targeted to the Board and the Legislature as they consider additions or modifications to policies concerning the CAHSEE and its use. We also offer several more technical recommendations for the continued improvement of the CAHSEE, which are targeted to CDE and to the test developer.

Key Policy Recommendations

General Recommendation 1: Keep the CAHSEE requirement in place for the Class of 2006 and beyond.

Approximately 68,000 students who were not able to demonstrate mastery of essential skills in the 10th grade have been able to do so by the end of 11th grade. While we cannot offer solid evidence, it seems likely that many would not have done so without being identified through their scores as needing additional help and being motivated by the CAHSEE graduation requirement to take advantage of the assistance that was available to them. It is also evident that the requirement motivated schools to

expand programs to help students master the required skills both before and after initial CAHSEE testing.

It would be a disservice to students, parents, and educators to send a message that some or all of the students in the Class of 2006 do not have to master language arts and mathematics skills deemed to be critical for success after high school.

General Recommendation 2: Identify specific options for students who are not able to satisfy the CAHSEE requirement and implement them by June 2006.

Nearly 100,000 students in the Class of 2006 did not satisfy the CAHSEE requirement by the end of the 11th grade. With continued effort and help many of these students will be able to satisfy the requirement in time to graduate with their class. However, many of these students, perhaps half, will not. To date, nearly half of English learners and nearly two thirds of students with disabilities have not met the CAHSEE requirement. Score gains from 10th to 11th grade were smaller for these students than for other students. If current trends prevail, a significant number of students including a substantial proportion of English learners and students with disabilities will not have passed the CAHSEE by the end of 12th grade. Many of these students will be denied a diploma for failing to meet other requirements as well.

Our second recommendation is that schools, districts, and the state provide options for students who want to earn a high school diploma but still do not pass the CAHSEE by the end of the 12th grade. We would urge consideration of multiple options to recognize the varying needs of students with different likelihoods of mastering the CAHSEE skills. Some of these may be interim steps while others may be required long term.

We differ strongly from the general conclusion of the SB 964 report (Rabinowitz et al., 2005) that the CAHSEE requirement should be deferred until alternative ways of demonstrating mastery of the standards and alternative diploma options for students unable to demonstrate mastery can be implemented with rigor. We believe it is better to keep the requirement in place and implement options now, improving technical rigor over time. The state should avoid sending the message that students should not continue to strive to master the essential skills, but rather provide options now for students who do not do so.

Some general principles in considering options are:

1. Insofar as possible, options should be available to all students who need them.
2. Options should not excuse students and schools from continued effort to develop and demonstrate the skills assessed by the CAHSEE.

3. Every effort possible should be made to help students master the targeted skills; alternative diploma options should be reserved for students who clearly cannot access the general education curriculum.
4. Alternative routes should be announced publicly.

Examples of options that could still be implemented for the Class of 2006 are:

- Community College Program. Update community college programs that lead to a high school diploma to focus on the CAHSEE skills. Allow students who need it up to two more years to master the CAHSEE skills and receive a diploma through participation in these programs. One advantage of this approach is that it would provide students with instruction in a different setting, not just repeating instruction that did not work before.
- Senior-Year Portfolio. Allow districts to develop and implement a senior-year portfolio project for students they believe have mastered the required skills but are unable to demonstrate this mastery on the CAHSEE during the 10th and 11th grade. Additional alternate forms of assessment might also be implemented this year if they can be imported from existing efforts.
- Summer Course(s) After 12th Grade. Allow (and encourage) districts to develop a summer program for students who have not been able to pass the CAHSEE and grant diplomas to students who successfully complete this program. Separate ELA and math courses could be offered, with students required to take or pass courses only if they had not yet passed the corresponding test on the CAHSEE.
- Additional Years of High School. By statute, students in special education programs can continue their high school education until the age of 22. This option might be expanded to allow other students to take an additional year or two of high school as well. This would be most reasonable if the opportunities provided go beyond the remedial programs to which the students already had access.
- Establish an Alternate Diploma or Graduation Certificate. Many districts already offer certificates of completion or other ways of recognizing accomplishment short of meeting the full set of graduation requirements. California might establish a statewide program for recognizing the accomplishment of students who do not meet all diploma requirements but are able to demonstrate mastery of an alternate set of goals. For students in special education programs, this option might involve different mastery goals for each student. This alternative, however, would not have to be limited just to special education students. In the interim, an alternate diploma or certificate might be based on passing one part of the CAHSEE or scoring above a lower set of performance standards. Eventually, however, assessment of mastery should be targeted more directly to alternate content standards set for students unable to master the full content covered by the CAHSEE.

General Recommendation 3: Accelerate efforts to implement a statewide system of student identifiers and develop and maintain a database with information on students who have and have not satisfied the CAHSEE requirements.

It is unfortunate that policy makers have to wait for this report to get any estimate of how many students in the Class of 2006 have and have not satisfied the CAHSEE requirement. And even so, the estimates we provide are approximate and will be subject to some debate. More exact information on the numbers of students yet to meet the CAHSEE requirement for each high school class is needed to design programs to help these students and to estimate funding requirements for these programs.

General Recommendation 4: Collect data from districts on students who are not able to satisfy the CAHSEE requirement by June 2006 and use this information to further refine options for students having difficulty mastering the skills assessed by the CAHSEE.

An important policy question for evaluating the impact of the CAHSEE is how many students will be denied a diploma due to the CAHSEE requirement alone. Currently there is no statewide database with information on satisfaction of other graduation requirements, some of which may be district specific. While there is some uncertainty about who has met the CAHSEE requirement, there is also uncertainty as to how many students have met the algebra course or any other specific graduation requirement. Most schools review graduation requirements with students early in their senior year. With this information, they should be able to respond accurately to a statewide survey fielded in the later half of the school year. Alternatively, CDE might wait until after June to see how many students who were seeking a diploma were actually denied the diploma and why.

Specific Technical Recommendations

A number of more specific technical recommendations are discussed in Chapter 8 of the report. These recommendations are:

Specific Recommendation 1: A number of suggestions for improving specific test questions, particularly with respect to making them accessible to all students, were offered based on the item review. These might provide useful insights as the test development contractor continues to improve and enhance its item development and review procedures.

Specific Recommendation 2: Statistical review of test items should include checks for differential item functioning for students with disabilities.

Specific Recommendation 3: Information on the curriculum and services received by students in special education programs was quite useful. CDE may want to link this information to CAHSEE results on a more regular basis.

Specific Recommendation 4: Conduct a field trial or demonstration project with a small number of districts that already use student identification codes to model the design and use of detailed student data.

Table of Contents

Executive Summary i

List of Tables xvii

List of Figures xxii

Chapter 1: Introduction 1
- The California High School Exit Examination 1
- Prior Evaluation Activities and Outcomes 2
  - Summary of Year 1 Evaluation Activities (June 2000) 2
  - District Baseline Survey Resulting from Year 1 Activities (December 2000) 3
  - Summary of Year 2 Evaluation Activities (June 2001) 4
  - Summary of Year 3 Evaluation Activities (June 2002) 6
  - Summary of Year 4 Evaluation Activities (September 2003) 8
  - Summary of Year 5 Evaluation Activities (September 2004) 11
- Summary of 2005 Evaluation Activities 12
- Organization and Contents of 2005 Evaluation Report 13

Chapter 2: Quality and Accessibility of CAHSEE Exam Items 15
- Introduction 15
- Item Review Workshops: Alignment of the CAHSEE to the Academic Content Standards 17
  - Assessment-to-Standards Alignment 17
  - California Academic Content Standards and Test Blueprints 18
  - Webb Alignment Method 19
  - Alignment Workshop Methods and Procedures 23
  - Alignment Results 26
  - Summary and Discussion of Alignment Results 39
  - Alignment Conclusions 42
- Item Review Workshops: Universal Design of the CAHSEE 43
  - Universal Design in the Environment and Education 43
  - Research by NCEO and Other Organizations 44
  - Universal Design and the CAHSEE 47
  - Universal Design Methods and Procedures 47
  - Universal Design Analysis and Results 49
  - Universal Design Conclusions and Recommendations 55
- Item Review Workshop: Summary Findings 57

Table of Contents (Continued)

Chapter 3: Results from the 2004–2005 Administrations 59
Introduction 59
Who Tested? 60
Analysis of the Test Score Data 63
Matching Student Records from Different Administrations 63
Computing Passing Rates 66
Equating the 2005 Test Forms 67
Scoring Consistency 70
Who Passed? 72
Initial Passing Rates for 10th Graders 72
Analysis of Results for English Learners 78
Analysis of Results by Mathematics Courses Taken 78
Improvement for 11th Graders Who Retested 80
Gain Scores 82
School-Level Effects 86
Difference in School-Level Passing Rates 86
Models of School and District Effects 89
Student, School, and District Information Analyzed 90
Results of HLM Analyses 96
Summary of Findings 99

Chapter 4: Evidence of the Effectiveness of Instruction for the Class of 2006 ... 101
Introduction 101
Evidence from Surveys and Site Visit Interviews 101
Survey and Interview Response Sample 101
Surveys 101
Site Visit Interviews 106
Combining Survey and Interview Data with School Characteristics 110
Factors that Limit the Effectiveness of Current Instruction 111
Student Preparation 111
Teacher Qualifications and Experience 115
Student Motivation 123
Parental Support 127
Effectiveness of Remediation 128
Factors Related to Test Score Performance 131
Combining Survey and Interview Data with School-Level CAHSEE Achievement Characteristics 131
Relationship of Survey Responses to Test Score Gains 134
Interview Responses to Articulation within School Groups and Across School Levels 138

Table of Contents (Continued)

School Staff Conclusions about the Class of 2006 140
School-Level Analysis of Conclusions 140
Summary Findings 143
Students 143
Teachers 144
Factors Impacting CAHSEE Performance 144
Opinion as to Class of 2006's Readiness to be Held Accountable to CAHSEE Graduation Requirement—Site Visits 145

Chapter 5: Impact of the CAHSEE Requirement on Instruction and Remediation 147
Introduction 147
Organization of This Chapter 147
Findings at the School Level 147
Increasing Coverage of the California Academic Content Standards 147
Consistency of Standards-Based Education 151
Exeprience in Teaching California Content Standards 153
Professional Development 155
Demanding Courses 159
Information About Specific Courses 161
Teacher Assignments by Course Type 166
Course Timing and Duration 168
Student Populations within Courses 170
Course Materials 171
Coverage of Targeted Standards 174
Remediation Programs Targeted to the CAHSEE 175
Targeted Programs for Students with Disabilities and English Learners 176
Exemplary Programs 178
Summary Findings 181

Chapter 6: Trends in Educational Achievement and Persistence During the Era of CAHSEE 183
Introduction 183
Enrollment Trends 183
Graduation and Dropout Rates 186
Single-year Dropout Rate 186
Cumulative Four-year Dropout Rate and Graduation Rate 189
College Preparation (SAT/ACT/UC & CSU courses) 190
College Entrance Examination Participation and Performance 190
College Preparatory Coursework 192
AP Test Achievement 194

Table of Contents (Continued)

College/University Enrollment 196
Student Questionnaire Regarding CAHSEE 198
Number of Respondents 198
Test Preparation 199
Importance of the Test 200
Plans for High School and Beyond 202
Perceived Test Performance and Influencing Factors 208
Summary Findings 217
Summary of Student Survey Responses 218

Chapter 7: Options for Students Receiving Special Education Services 221
Introduction 221
One Solution May Not Fit All 223
Supplemental Data on Students Receiving Special Education Services 223
Passing Rates for Students Receiving Different Special Education Services 226
Results for Students Receiving Special Education Services Who Retested in 11th Grade 230
Accommodations and Modifications 233
Summary of Findings 235

Chapter 8: Summary of Findings and Recommendations 237
Introduction 237
Summary of Findings 237
Chapter 2: Item Review 237
Chapter 3: Results from the CAHSEE Administrations 238
Chapter 4: Impact of Instruction on CAHSEE 239
Chapter 5: Impact of CAHSEE on Instruction 240
Chapter 6: Trends in Educational Achievement and Persistence During the Era of CAHSEE 240
Chapter 7: Results for Students Receiving Special Education Services 241
Recommendations 242
Key Policy Recommendations 243
Specific Technical Recommendations 247

References 249

Appendices A Through D ..... Volume 2

Appendices E Through H ..... Volume 3

Table of Contents (Continued)

List of Tables

Table 2.1. Content Strands Assessed by the CAHSEE for ELA and Math 18
Table 2.2. Webb Labels Applied to California Academic Content Standards for English-Language Arts 20
Table 2.3. Webb Labels Applied to California Academic Content Standards for Mathematics 21
Table 2.4. Panelists by Content Area and Current Position 24
Table 2.5. Experience Level of Panelists 24
Table 2.6. Test Item Composition by Content Area 24
Table 2.7. Number of Standards, Goals, and Objectives for Math and ELA 25
Table 2.8. Depth of Knowledge Levels from Alignment Instructions Sheet 25
Table 2.9. Agreement of Workshop Participants with the Operational Standards and Objectives Assigned by the Test Developer 28
Table 2.10. Categorical Concurrence: Mean Number of Core Items per Standard 29
Table 2.11. Depth of Knowledge Consistency: Mean Percent of Core Items with DOK Below, At, and Above DOK Level of Objectives 31
Table 2.12. Range of Knowledge: Mean Percent of Objectives per Standard Linked with Core Items 33
Table 2.13. Balance of Representation: Mean Balance Index per Standard 35
Table 2.14. ELA: Summary of Reviewer Comments on Items 36
Table 2.15. Mathematics: Summary of Reviewer Comments on Items 36
Table 2.16. Debriefing Survey for Mathematics: Summary Responses 37
Table 2.17. Debriefing Survey for ELA: Summary Responses 38
Table 2.18. Degree of Alignment Between CAHSEE ELA Core Items and California Academic Content Standards on Four Content Criteria 39
Table 2.19. ELA: Summary of Alignment Levels per Standard 40
Table 2.20. Degree of Alignment Between Core CAHSEE Math Items and California Academic Content Standards on Four Content Criteria 41
Table 2.21. Mathematics: Summary of Alignment Levels per Standard Across Workshops 41
Table 2.22. Degree of Alignment Between Core CAHSEE Test Items and Relevant California Academic Content Standards for Math and ELA 43
Table 2.23. Individual, Whole Test Analysis of CAHSEE ELA Items (N = 14) 51
Table 2.24. Individual, Whole Test Analysis of CAHSEE Math Items (N = 16) 52

Table 3.1. Number of Students Taking the CAHSEE ELA Test in 2004–05 by Administration Type and Date 61
Table 3.2. Number of Students Taking the CAHSEE Mathematics Test in 2004–05 by Administration Type and Date 62
Table 3.3. Number of Records Matched Across 2004–05 Administrations 64
Table 3.4. Matched and Unmatched Students from the 2004 and 2005 Administrations 65
Table 3.5. Matching Students Who Had Not Passed in 2004 65

Table of Contents (Continued)

Table 3.6. Tenth Grade Enrollment Estimates from DataQuest, STAR, and CAHSEE 66
Table 3.7. Raw-to-Scale Score Conversions for the 2004–05 ELA Tests 68
Table 3.8. Raw-to-Scale Score Conversions for the 2004–05 Mathematics Tests..... 69
Table 3.9. Rater Scoring Consistency for Student Essays 71
Table 3.10. Percent of 10th Grade Essays Assigned Each Score Level by Each Rater in 2005 71
Table 3.11. Percent of 11th Grade Essays Assigned Each Score Level by Each Rater in the 2004–05 School Year 72
Table 3.12. Initial Passing Rates by Demographic Group—English-Language Arts..... 73
Table 3.13. Initial Passing Rates by Demographic Group—Mathematics 74
Table 3.14. Percent of 10th Grade Students Passing Both Parts of the CAHSEE by Demographic Group 76
Table 3.15. Initial 10th Grade Passing Rates by Student Category and Race/Ethnicity 77
Table 3.16. Distribution of Students by Highest Math Course Taken 79
Table 3.17. Trends in Math Courses Taken by Demographic Group 79
Table 3.18. Initial Mathematics Passing Rates by Class and Highest Math Course Taken 80
Table 3.19. ELA Mean Scores for Students Who Tested in 2004 But Did Not Pass 81
Table 3.20. Mathematics Mean Scores for Students Who Tested in 2004 But Did Not Pass 82
Table 3.21. Average Score Gains and Percentage Passing for 11th Graders Who Retested in 2005..... 84
Table 3.22. Estimated Passing Rates for Class of 2006 After 11th Grade 85
Table 3.23. Change in Percent Completing CAHSEE Requirement from 10th to 11th grade by Demographic Group..... 86
Table 3.24. 2005 10th Grade ELA Passing Rates for Schools with Different Concentrations of Minority or At-risk Students 87
Table 3.25. 2005 10th Grade Mathematics Passing Rates for Schools with Different Concentrations of Minority or At-risk Students 88
Table 3.26. 2005 10th Grade Passing Rates for Low-Performing Schools 89
Table 3.27. Descriptive Statistics of Student 2004 Score, 2005 Score, and 2004–2005 Score Gains on the CAHSEE ELA Test by Student-Level Variables 91
Table 3.28. Descriptive Statistics of Student 2004 Score, 2005 Score, and 2004–2005 Score Gains on the CAHSEE Math Test by Student-Level Variables 92
Table 3.29. Brief Description of School-Level Demographic Variables for Score Gain HLM Analysis 93
Table 3.30. Frequencies of Categorical School-Level Variables (Total Number of Distinct Schools Observed = 1,686)..... 94
Table 3.31. Descriptive Statistics of Numeric School-Level Variables 94
Table 3.32. Brief Description of District-Level Finance Variables for Score Gain HLM Analyses (Unit: Dollars-per-Student [ADA])..... 95
Table 3.33. Descriptive Statistics of District-Level Finance Variables for Score Gain HLM Analyses (Unit: Dollars-per-Student [ADA]) 96

Table of Contents (Continued)

Table 3.34. Variation in 11th Grade Student Gain Scores at the Student, School, and District Levels 97
Table 3.35. Significant Predictors (p < .01) for the Growth Model 98

Table 4.1. Survey Response Rates 102
Table 4.2. Sample Characteristics by Response Status (Districts) 103
Table 4.3. Sample High School Characteristics by Survey Response Status (High Schools) 105
Table 4.4. Sample High School Characteristics by Survey Response Status (Feeder Schools) 106
Table 4.5. Sample High School Characteristics by Site Visit Participation Status (High Schools) 107
Table 4.6. Sample High School Characteristics by Site Visit Participation Status (Middle Schools) 108
Table 4.7. Number and Type of Interviews at Individual Feeder Schools 109
Table 4.8. Number and Type of Interviews at Individual High Schools 109
Table 4.9. Empirical Classifications of High Schools into Categories: Demographic Distributions 111
Table 4.10. Ratings of Student Preparation by Interview Type, Current v. 2 Years Ago on a Scale of 1(lowest) to 5 (best) 112
Table 4.11. Ratings of Student Preparedness in Schools with High Concentrations of At-risk Students, According to Teachers 114
Table 4.12. Proportion of Students Who Achieved At Least Basic Performance on Previous Year's STAR CST, According to High School Teachers 115
Table 4.13. Percentage of Schools with ELA and Mathematics Teachers Working With an Appropriate Credential, According to High School Department Head 116
Table 4.14. Teacher Credentialing in Schools with High Concentrations of At-risk Students, According to High School Department Head 117
Table 4.15. Rates of High School Teaching Credentials, According to Teachers Surveyed 118
Table 4.16. Percentage of Schools with ELA and Mathematics Teachers Who Are Working With Emergency Credentials or Are District Interns, According to High School Department Head 119
Table 4.17. Emergency Credentialing in Schools with High Concentrations of At-risk Students, According to High School Department Head 120
Table 4.18. Teacher Experience in Schools with High Concentrations of At-risk Students, According to High School Department Head 123
Table 4.19. Percentage of Teachers Citing Factors That Limit Course Effectiveness to a (Very) Great Extent, by Course Type 126
Table 4.20. Percentage of Teachers Citing Top Three Factors That Limit Course Effectiveness in Schools with High Concentrations of At-risk Students 127
Table 4.21. Participation of Students in ELA Remedial Courses and Subsequent CAHSEE Performance, According to District ELA Curriculum Heads 129

Table of Contents (Continued)

Table 4.22. Participation of Students in Mathematics Remedial Courses and Subsequent CAHSEE Performance, According to District Mathematics Curriculum Heads 129
Table 4.23. Empirical Classifications of High Schools into Categories: CAHSEE ELA Performance 132
Table 4.24. Empirical Classifications of High Schools into Categories: CAHSEE Mathematics Performance 133
Table 4.25. Relationships of Teaching Qualifications to CAHSEE Performance of 10th Grade Students in 2005 135
Table 4.26. Mean Importance Ratings of Regular Articulation Meetings with Feeder School, According to High School Principals 135
Table 4.27. Primary Topics Discussed During Articulation Meetings with Feeder Middle Schools, According to High School Principals 136
Table 4.28. Primary Topics Discussed During Articulation Meetings with Feeder Elementary School, According to Middle School Principals 138
Table 4.29. Primary Topics Discussed During Articulation Meetings with Receiving High Schools, According to Middle School Principals 138

Table 5.1. Degree of CAHSEE Content Coverage in Schools with High Concentrations of At-risk Students, According to Principals 149
Table 5.2. Rate of Implementation of Instruction Based on California Content Standards, Current v. 2 Years Ago, by Interview Type and Level 151
Table 5.3. Teacher Experience With Teaching California Content Standards in Schools with High Concentrations of At-risk Students, According to High School Department Heads 154
Table 5.4. Extent of Teacher Professional Development in Schools with High Concentrations of At-risk Students, According to Principals 157
Table 5.5. “Other” Systems Used by High School Principals to Monitor and Report Student Proficiency Levels on Content Standards 159
Table 5.6. Ratings of Courses as (Very) Greatly Demanding of Students in Schools with High Concentrations of At-risk Students, According to High School Department Heads 161
Table 5.7. Number of Courses Covered with Survey Responses by School Level and Subject 161
Table 5.8. Distribution of Courses by Subject, Type, and Students Served 162
Table 5.9. High School Teachers’ Course and Instructional Program Title Frequencies: ELA 163
Table 5.10. High School Teachers’ Course and Instructional Program Title Frequencies: Math 164
Table 5.11. High School Teachers’ Course and Instructional Program Title Frequencies: Other 165
Table 5.12. Percentages of High School Course Offerings by Course Type 168
Table 5.13. Before/After School and Summer School Offerings in Schools with High Concentrations of At-risk Students, According to Teachers 169

Table of Contents (Continued)

Table 5.14. Durations of Courses/Programs by Course Type 170
Table 5.15. Majority Grade Level of Students, by Course 170
Table 5.16. Total Number of Students Enrolled, by Course 170
Table 5.17. Textbook Use and Stability 171
Table 5.18. Reasons for High School Teachers Using Supplemental Materials 173
Table 5.19. Reasons for Middle School Teachers Using Supplemental Materials 174

Table 6.1. Enrollment Declines from 9th Grade to 10th Grade 184
Table 6.2. Enrollment Declines from 10th Grade to 11th Grade 185
Table 6.3. Enrollment Declines from 11th Grade to 12th Grade 185
Table 6.4. A–G Course Completions as a Percentage of Freshmen Four Years Earlier, by Race/Ethnicity and Gender 194
Table 6.5. California Postsecondary Education Commission (CPEC) Counts of High School Graduates and FTF Enrollments 197
Table 6.6. Number of First time and Repeat Test Takers in 2004 and 2005 199
Table 6.7. Student-reported Test Preparation 200
Table 6.8. Importance of the Tests as Perceived by Test Takers 201
Table 6.9. Self-reported Certainty About High School Graduation 202
Table 6.10. Perceived Impact of the Tests on High School Graduation 204
Table 6.11. Self-reported Plans After Graduating From High School 205
Table 6.12. Self-reported Certainty about Post High School Plans 207
Table 6.13. Self-reported Test Performance 208
Table 6.14. Percentage of Students Reporting Reasons For Not Doing as Well as They Could 209
Table 6.15. Self-reported Exposure to Topics on the Tests 211
Table 6.16. Students' Familiarity with the Types of Questions on the Tests 213
Table 6.17. Students' Perceived Difficulty of the Test Questions 214
Table 6.18. Students' Reasons That Topics Were Difficult on the Tests 216
Table 6.19. Changes in Student Responses From 2004 to 2005: Sophomores Each Year and Changes Over Time by Repeat Test Takers 219

Table 7.1. Number of Students in the CASEMIS Files by Grade Matched to CAHSEE Results by Grade 225
Table 7.2. Types of 10th Grade Special Education Students with Low CAHSEE Participation 226
Table 7.3. Number of Students and Percent Passing by Time Away from Regular Instruction (Matched 2005 10th Grade Students) 227
Table 7.4. Number of Students and Percent Passing by Type of Service Received (Matched 2005 10th Grade Students) 228
Table 7.5. Percent of Time Outside Regular Instruction by Type of Service Received (Matched 2005 10th Grade Students) 229
Table 7.6. Primary Disability Codes for 10th Grade Students Receiving Special Education Services with CAHSEE Success Information 230

Table of Contents (Continued)

Table 7.7. Number of Students and Average Score Gain by Time Away from Regular Instruction (Matched 2005 11th Grade Students) 231
Table 7.8. Number of Students and Average Gain by Type of Service Received (Matched 2005 11th Grade Students) 232
Table 7.9. Number of Matched 10th Grade Special Education Students and Percent Passing by Type of Service and Testing Condition 234

List of Figures

Figure 2.1. Number of states that include universal design in test development. 45

Figure 3.1. Average ELA retest score by 2004 score level. 83
Figure 3.2. Average mathematics retest score by 2004 score level. 83

Figure 4.1. Percentage of teachers indicating student preparedness for success in course. 113
Figure 4.2. Proportions of students receiving ELA instruction from credentialed teachers, according to district ELA curriculum heads (n=98). 121
Figure 4.3. Proportions of students receiving mathematics instruction from credentialed teachers, according to district ELA curriculum heads (n=87). 121
Figure 4.4. Proportion of high school ELA teachers with five (5) or more years of teaching experience, according to department head (n=179). 122
Figure 4.5. Proportion of high school math teachers with five (5) or more years of teaching experience, according to department head (n=185). 122
Figure 4.6. Factors that teachers indicate limit course effectiveness to a great or very great extent. 125
Figure 4.7. Prevalence of regular articulation meetings and CAHSEE pass rates (N_{ELA}=186; N_{Math}=190). 136
Figure 4.8. Level to which middle school-high school coordination is developed and CAHSEE pass rates (N_{ELA}=188; N_{Math}=192). 137
Figure 4.9. Level to which special education-general education coordination is developed and CAHSEE pass rates (N_{ELA}=186; N_{Math}=190). 137

Figure 5.1. High school principals' estimates of how completely their school covered the California ELA Content Standards contained in the blueprints adopted for CAHSEE, over time. 148
Figure 5.2. High school principals' estimates of how completely their school covered the California Mathematics Content Standards contained in the blueprints adopted for CAHSEE, over time. 148
Figure 5.3. Middle school principals' estimates of how completely their school covered the California ELA Content Standards contained in the blueprints adopted for CAHSEE, over time. 150

Table of Contents (Continued)

Figure 5.4. Middle school principals' estimates of how completely their school covered the California Mathematics Content Standards contained in the blueprints adopted for CAHSEE, over time. 150
Figure 5.5. Percentage of high school ELA and math department chairs reporting various levels of teacher experience with teaching California content standards associated with CAHSEE (n_{ELA}=194; n_{Math}=199). 153
Figure 5.6. Percentage of high school principals reporting various levels of ELA and math teacher professional development to help them teach California content standards associated with CAHSEE (n=215). 155
Figure 5.7. Percentage of middle school principals reporting various levels of ELA and math teacher professional development to help them teach California content standards associated with CAHSEE (n=36). 156
Figure 5.8. Methods for tracking student proficiency in content standards, according to high school principals. 158
Figure 5.9. Methods for tracking student proficiency in content standards, according to middle school principals. 158
Figure 5.10. Highest math courses completed by eighth grade, according to middle school principals. 159
Figure 5.11. Extent to which high school department heads rate courses as demanding courses for students (n_{ELA}=192; n_{Math}=201). 160
Figure 5.12. Education levels of teachers by course type. 167
Figure 5.13. Years of teaching experience by course type. 167
Figure 5.14. Percentage of ELA courses in which supplemental materials are used at least weekly. 172
Figure 5.15. Percentage of mathematics courses in which supplemental materials are used at least weekly. 172

Figure 6.1. Enrollment declines from 9th to 10th grade by high school class. 184
Figure 6.2. Enrollment declines from 10th to 11th grade by high school class. 185
Figure 6.3. Enrollment declines from 11th to 12th grade by high school class. 186
Figure 6.4. CDE explanation of dropout rate calculation as of October 2003. 187
Figure 6.5. CDE explanation of dropout rate calculation prior to October 2003. 188
Figure 6.6. Dropout rates according to CDE. 189
Figure 6.7. Graduation and dropout rates. 190
Figure 6.8. SAT and ACT participation rates and success rates over time. 191
Figure 6.9. SAT mean math and verbal scores over time. 192
Figure 6.10. ACT mean scores over time. 192
Figure 6.11. A–G course completion over time. 193
Figure 6.12. AP participation rates over time. 195
Figure 6.13. AP pass rates over time (i.e., number of AP exam scores >=3 as a percentage of student enrollment). 196
Figure 6.14. Percentage of California public and private high school graduates enrolling as first time freshmen (FTF) in California colleges and universities. 197
Figure 6.15. Importance of the ELA test perceived by test takers. 201

Table of Contents (Continued)

Figure 6.16. Certainty about high school graduation reported by ELA test takers..... 203
Figure 6.17. Perceived impact of the test requirement on high school graduation after the math test. 204
Figure 6.18. Self-reported post high school plans after the math test. 206
Figure 6.19. Certainty about post high school plans after the ELA test. 207
Figure 6.20. Reasons students did not do as well as they could on the ELA test. 209
Figure 6.21. Self-reported exposure to topics on the math test. 212
Figure 6.22. Students' familiarity with the types of questions on the math test. 213
Figure 6.23. Percentage of students perceiving the test questions more difficult than course work. 215
Figure 6.24. Percentage of test takers citing various reasons that test topics were difficult. 217

Chapter 1: Introduction

The California High School Exit Examination

The California legislation that established the requirement that students pass a graduation exam in English-language arts (ELA) and mathematics beginning with the Class of 2004 (established by Senate Bill (SB)-2X, passed in 1999 and written into the California Education Code as Chapter 9, Sections 60850–60856) was further modified in 2002 through the passage of Assembly Bill (AB) 1609. The revised legislation gave the State Board of Education (the Board) authority to postpone the California High School Exit Examination (CAHSEE) requirement, based in part on the results of a study of the extent to which both test development and standards-based instruction met standards for this type of examination (Wise et al., 2003a). In July 2003, after the completion of the 2002–03 CAHSEE testing, the Board voted to defer the CAHSEE requirement until 2006.

The original legislation mandating the requirements for the graduation exam also specified an independent evaluation of the CAHSEE. The original contract period operated from 1999 through 2004; an additional contract was awarded to continue the evaluation through 2007. The California Department of Education (CDE) awarded both contracts for the evaluation to the Human Resources Research Organization (HumRRO). HumRRO's efforts have focused on analyses of data from tryouts of test questions and from the annual administrations of the CAHSEE, and have reported on trends in pupil performance and retention, graduation, dropout, and college attendance rates. The legislation also specified that evaluation reporting would include recommendations for improving the quality, fairness, validity, and reliability of the examination. The legislation required an initial evaluation report in June 2000 and biennial reports to the Governor, the Legislature, the Board, and the CDE in February 2002 and February 2004.

In addition to the legislatively mandated evaluation reports, the contracts for the evaluation required an annual report of evaluation activities. The present report meets the contract requirement for a report of activities and findings during the sixth year of the evaluation (the first year of the evaluation continuation contract). This report adds to results and recommendations included in prior evaluation reports (Wise, Hoffman, & Harris, 2000; Wise, Harris, Sipes, Hoffman, & Ford, 2000a; Wise, Sipes, George, Ford, & Harris, 2001; Wise et al., 2002b; Wise et al., 2003; Wise et al., 2004a; Wise et al., 2004b). Findings and recommendations from the prior reports are summarized briefly in the next sections to provide a context for the continuing evaluation activities.

Prior Evaluation Activities and Outcomes

Summary of Year 1 Evaluation Activities (June 2000)

The Year 1 evaluation report reviewed and analyzed three types of information:

Test Developer Plans and Reports. No formal reports were available during the first year; thus, HumRRO attended meetings and listened to presentations by the development contractor, American Institutes for Research (AIR), and by the CDE. We also monitored various presentations to the High School Exit Examination (HSEE) Panel and to the Board, and had direct conversations with members of each of these groups.

Statewide Data Sources. An initial source of information for the evaluation was data from the CAHSEE pilot administration. HumRRO also examined 1999 Standardized Testing and Reporting (STAR; for details see http://www.cde.ca.gov/ta/tg/sr/index.asp) results with plans to monitor trends in STAR results over the course of the evaluation.

District and School Sample. HumRRO selected a representative sample of 24 districts and approximately 90 of their high schools to establish a longitudinal group for study. The baseline surveys, which were administered to principals and English-language arts and mathematics teachers, provided an initial look at schools' perspectives of the impact of CAHSEE on their programs. We also recruited teachers and curriculum experts from these schools and their districts to review test items and tell us whether they covered knowledge and skills that not all students would be taught in their current curriculum.

The following summarizes the specific recommendations made at the end of the Year 1 evaluation activities:

Recommendation 1. The Legislature and Governor should give serious consideration to postponing full implementation of the CAHSEE requirement by 1 or 2 years.

Recommendation 2. The CDE should develop and seek comment on a more detailed timeline for CAHSEE implementation activities. This timeline should show responsibility for each required task and responsibility for oversight of the performance of each task. The plan should show key points at which decisions by the Board or others would be required along with separate paths for alternative decisions made at each of these points.

Recommendation 3. The CDE and the Board should work with districts to identify resource requirements associated with CAHSEE implementation. The Legislature must be ready to continue to fund activities to support the preparation of students to meet the ambitious challenges embodied in the CAHSEE.

Recommendation 4. The Board should adopt a clear statement of its intentions in setting CAHSEE content and performance standards. This statement should describe the extent to which these standards are targeted to ensure minimum achievement relative to current levels or to significantly advance overall expectations for student achievement.

Recommendation 5. The Board should exhibit moderation in selecting content standards and setting performance standards for the initial implementation of CAHSEE. Subsequently, standards should be expanded or increased based on evidence of improved instruction.

Recommendation 6. Members of the HSEE Panel and its Technical Advisory Committee should participate in developing recommendations for minimum performance standards.

Recommendation 7. The CDE should move swiftly to establish an independent Technical Issues Committee (TIC) to recommend approval or changes to the CAHSEE development contractor's plans for item screening, form assembly, form equating, scoring, and reporting.

Complete details of the Year 1 evaluation, including selection procedures for the longitudinal sample, are presented in a primary and a supplemental report describing evaluation activities, findings, and recommendations (Wise et al., June 2000a; Wise et al., August 2000b). These two evaluation reports emphasize both the positive aspects of the results, as indicated by several measures of the quality of the test questions, and the amount of work remaining to be done before operational administration of the CAHSEE. The primary apprehension noted in these reports was educators' concern that, at that time, students were not well prepared to pass the exam.

District Baseline Survey Resulting from Year 1 Activities (December 2000)

The results of the baseline survey of teachers and principals in the longitudinal sample of high schools indicated concern with the degree to which students were being provided sufficient opportunities to learn the material covered by the CAHSEE. After reviewing these concerns, the Board and the CDE requested an additional survey of all public high school and unified districts in California. The contract required that a CAHSEE District Baseline Survey be conducted prior to October 1, 2000. HumRRO developed and sent out the survey shortly after the Board adopted specifications for the CAHSEE. The survey covered plans for changes in curriculum and other programs to help students pass the examination. We asked that each district have the survey completed by an Assistant Superintendent or Director of Curriculum and Instruction, or the individual at the district level who was most knowledgeable about the CAHSEE.

The survey, which built on and benefited from the results of the longitudinal sample survey, addressed five critical topics:

1. *awareness* of the CAHSEE, its content, administration plans, and requirements for student participation;
2. *alignment* of the district's curriculum to statewide content standards, particularly those to be covered by the CAHSEE;
3. *plans and preparation* for increasing opportunities for all students to learn the material covered by the CAHSEE and to help students who do not initially pass the examination;
4. *expectations* for passing rates and for the effect of the CAHSEE on instruction and the status of specific programs offered in the district; and
5. *outcome baselines,* including retention and graduation rates and students' post-graduation plans.

The following general conclusions were drawn from results of the district survey:

1. *General awareness* of the CAHSEE was high, but more information was needed, particularly for students and parents, about (a) the knowledge and skills covered by the CAHSEE and (b) plans for administration and reporting.
2. *Districts reported high degrees of alignment* of their own content standards to the state content standards. The survey addressed this question at a general level; we concluded more work was needed to assess and document the degree to which each district's curriculum covered the content standards tested by the CAHSEE and the degree of student access to courses that offered such coverage.
3. *Districts had implemented or planned a number of programs* to prepare students and teachers for the CAHSEE and to assist students who did not initially pass. The most frequently planned activities included more summer school, tutoring, and matching student needs to specific courses.
4. *Districts believed the CAHSEE would have a positive impact* on curriculum and instruction. Most expected at least half of their students to pass the CAHSEE on their first attempt.
5. *Outcome baselines* would be used in future years.

Complete details of the district-wide survey effort were presented in a final technical report describing evaluation activities, findings, and recommendations (Sipes, Harris, Wise, & Gribben, 2001).

Summary of Year 2 Evaluation Activities (June 2001)

The Year 2 evaluation reviewed and analyzed three types of information:

Developer Plans and Reports. HumRRO continued to monitor test development activities, ranging from observation of and presentations to the HSEE Panel to observation of the standard-setting workshops to develop recommendations for minimum passing scores for each of the two portions of the CAHSEE test: mathematics and ELA. We reviewed and participated in numerous discussions concerning the equating of alternate forms, the score scale used, and the minimum passing levels.

Analysis of Field-Test and Operational CAHSEE Data. HumRRO analyzed results from a second field test of new CAHSEE questions, conducted in Fall 2000, and began analyses from the operational administrations of CAHSEE in March and May of 2001. Initial analyses of technical characteristics of the test form used in the March administration and the resulting passing rates were described in our Year 2 Evaluation Report (Wise et al., June 2001).

Longitudinal Surveys of District and School Sample Personnel. The representative sample of 24 districts and approximately 90 of their high schools required replacement of one district with three schools. The surveys, which were administered to principals and ELA and mathematics teachers, provided a continuing look at schools' perspectives of the impact of the CAHSEE on their programs. In addition, testing coordinators were surveyed to identify issues with the administration of the CAHSEE.

The following summarizes the two general and six specific recommendations made in HumRRO's report of the Year 2 evaluation activities.

Recommendation 1. Stay the course. The Legislature and Board should continue to require students in the Class of 2004 to pass the exam, but monitor schools' progress in helping most or all of their students to master the required standards.

Recommendation 2. The Legislature and Board should continue to consider options for English learners and students receiving special education services.

Recommendation 3. Provide more technical oversight for the continued development and administration of the CAHSEE.

Recommendation 4. For future classes, delay testing until the 10th grade.

Recommendation 5. Construct a practice test of released CAHSEE items for districts and schools to administer to 9th graders to identify students at risk of not passing the CAHSEE.

Recommendation 6. Monitor test administration more extensively and develop a system for identifying and resolving issues.

Recommendation 7. Develop and implement a more comprehensive statewide information system that will allow the CDE to monitor individual student progress.

Recommendation 8. The Superintendent, the Board, and Legislature should specify in more detail the treatment of students in special circumstances (e.g., students receiving special education services and English learners) under CAHSEE requirements.

Complete details of the Year 2 effort were presented in the annual evaluation report and first biennial report describing evaluation activities, findings, and recommendations (Wise et al., June 2001; Wise et al., January 2002a). These two reports described results of the first administration of the CAHSEE to 9th graders in the Class of 2004. The reports also described preparation for and reactions to the CAHSEE as reported by principals and teachers. A key concern described in these reports was the relatively low passing rate for the mathematics portion of the exam, particularly for students receiving special education services and English learners.

Summary of Year 3 Evaluation Activities (June 2002)

The first biennial report of the CAHSEE evaluation was released in February 2002 (Wise et al., January 2002a). This report supplemented information on the 2002 administrations from the Year 2 report and included specific recommendations to the Legislature, the Governor, and the Board. These were:

General Recommendation 1. Stay the course. The Legislature and the Board should continue to require students in the Class of 2004 to pass the exam, but monitor schools' progress in helping most or all of their students to master the required standards.

General Recommendation 2. The Legislature and the Board should continue to consider options for students with disabilities and for English learners.

The first biennial report also included several more specific recommendations to:

- Provide more technical oversight.
- Delay testing of future classes until the 10th grade.
- Construct a practice test of released CAHSEE items for districts and schools to administer to 9th graders to identify students at risk of failing the CAHSEE.
- Monitor test administration more extensively and develop a system for identifying and resolving issues.
- Develop a more comprehensive information system that will allow the state to monitor individual student progress.
- Specify (the Superintendent, the Board, and Legislature working in concert) in more detail how students in special circumstances will be treated by the CAHSEE requirements.

Other Year 3 evaluation activities involved reviewing and analyzing four types of information:

Test Developer Plans and Reports. HumRRO continued to monitor test development activities and reports. These included changes to test administration procedures, equating alternate forms, and changes to reporting procedures.

Independent review of test questions. HumRRO assembled two panels of experts in curriculum and instruction, most of whom taught either ELA or mathematics, and asked them to review and analyze questions from recent CAHSEE administrations as well as questions from the (then) new test development contractor that had not yet been used operationally. Ratings indicated the extent to which the questions fairly and completely assessed targeted content standards. In addition, we asked the reviewers to note any specific issues with the quality of the questions or the response options.

Operational CAHSEE Data. HumRRO analyzed results from the operational administration of CAHSEE to 10th graders in March of 2002. We presented our initial analyses of technical characteristics of the test form used in the March administration and the resulting passing rates in our Year 3 Evaluation Report (Wise et al., June 2002b).

Longitudinal Surveys of District and School Sample Personnel. The representative sample of 24 districts and approximately 90 of their high schools required replacement of two districts (the original districts dropped out). The surveys, which were administered to principals and ELA and mathematics teachers, provided a continuing look at schools' perspectives of the impact of the CAHSEE on their programs. In addition, we surveyed testing coordinators to identify issues with the administration of the CAHSEE.

The Year 3 report of evaluation activities summarized findings from the data that HumRRO analyzed (Wise, et al., June, 2002b). We reported that available evidence suggested that the CAHSEE had not yet had any impact on retention, dropout rates, or expectations for graduation and post-high-school plans. Progress in developing the exam continued to be noteworthy. We found no significant problems with the development, administration, or scoring of the March 2002 exam. Students had made significant progress in mastering the required ELA skills, but less progress in mathematics. For disadvantaged students, initial passing rates continued to be low and progress for repeat test-takers was limited. Teachers and principals remained positive about the CAHSEE's impact on instruction. We found that more of them now expected positive impact on student motivation and parental involvement. Finally, teachers and principals reported planning and/or implementing a number of constructive programs for helping students master the skills covered by the CAHSEE.

Based on these findings, HumRRO offered the following two general and four more specific recommendations:

General Recommendation 1. Schools needed to focus attention on effective ways of helping students master the required skills in mathematics. The CDE might consider a "what works" effort with respect to remedial programs, and disseminating information about effective programs and practices.

General Recommendation 2. State policymakers needed to engage in a discussion about reasonable options for those students receiving special education services who were unlikely to pass the test.

Specific Recommendation 1. The score scale needed to be changed for students scoring below 300 (chance levels). As a short-term solution HumRRO recommended simply recoding scores below 300 to 299. Teachers, students, and parents would need to be cautioned against interpreting differences below the 300 level. (Our analysis indicated that the CAHSEE tests are acceptably accurate in determining whether students meet the achievement requirements. However, CAHSEE scores do not provide meaningful distinctions for students scoring below chance levels (about 300 on the current score scale). The recommendation refers to a potential danger that students, parents, and teachers could incorrectly interpret a gain below the 300 level as an indicator of significant progress when it is not)

Specific Recommendation 2. Districts and schools should be asked to supply more complete information on who had taken, was taking, and still needed to take the CAHSEE.

Specific Recommendation 3. The CDE should work with schools to collect more information on documentation of student needs for accommodations or modifications.

Specific Recommendation 4. Educational Testing Service (ETS) should follow up on (a) specific test question issues identified in our item review workshops and (b) specific suggestions for improving their new scoring process from our review of their current online training.

Summary of Year 4 Evaluation Activities (September 2003)

The Year 4 evaluation activities included reviewing and analyzing three types of information:

Test Developer Plans and Reports. We continued to monitor test development activities and reports. These included changes to test administration procedures, equating alternate forms, and changes to reporting procedures.

Operational CAHSEE Data. We analyzed results from the six operational administrations of CAHSEE from July 2002 through May 2003. These included continued administration to 11th graders in the Class of 2004 who had not yet passed one or both parts of the CAHSEE and a census administration to 10th graders in the Class of 2005.

Longitudinal Surveys of District and School Sample Personnel. The representative sample of 24 districts and approximately 90 of their high schools

required replacement of one district with three schools. The surveys, which were administered to principals and English-language arts and mathematics teachers, provided a continuing look at schools' perspectives of the impact of the CAHSEE on their programs. In addition, testing coordinators were surveyed for the second year to identify issues with the administration of the CAHSEE.

The Year 4 report (Wise et al., September 2003b) of evaluation activities summarized findings from the data that were analyzed. The report stated that available evidence indicated that the CAHSEE had not led to an increase in dropout rates. Passing rates for students in the Class of 2005 were slightly lower than passing rates for students in the Class of 2004. Yet in comparison with Class of 2004 students when they were in the 10th grade, more students in the Class of 2005 believed that the CAHSEE was important to them. Schools were continuing efforts to ensure that the California academic content standards were covered in instruction and to provide support for students who needed additional help in mastering these standards. Professional development in the teaching of the content standards had not yet been extensive. Teacher and principal expectations for the impact of CAHSEE on students was largely unchanged from prior years. There were no significant problems with local understanding of test administration procedures, but some issues remained with the provision of student data and the assignment of testing accommodations.

Subsequent to the 2003 administrations, the Board deferred implementation of the CAHSEE requirement to the Class of 2006. Based on information summarized in our general findings, we offered four recommendations for future administration of the CAHSEE:

Recommendation 1. Restarting the exam with the Class of 2006 would provide some opportunities for improvement; however, careful consideration should be given to any changes that were implemented.

Recommendation 2. The California Department of Education and the State Board of Education should continue to monitor and encourage efforts by districts and schools to implement effective standards-based instruction.

Recommendation 3. Professional development for teachers offered a significant opportunity for improvement.

Recommendation 4. Further consideration of the CAHSEE requirements for students receiving special education services was needed, in light of the low passing rates for this group. Apparent disparities between racial and ethnic groups within the special education population required further investigation.

Year 4 evaluation activities also included a special study of standards-based instruction, specified under AB 1609 legislation, which included several changes to the CAHSEE. Among other things, this bill called for a special study of the extent to which the development of the CAHSEE and standards-based instruction met the requirements

for a high school graduation test. Evaluation activities were expanded to meet the requirements for this study. A detailed description of the study, along with findings and recommendations, were included in a report to the Board, May 1, 2003 (Wise et al., May 2003a). Key findings from the study were:

> *Finding 1.* The development of the CAHSEE met all of the test standards for use as a graduation requirement.
>
> *Finding 2.* The CAHSEE requirement had been a major factor leading to dramatically increased coverage of the California academic content standards at both the high school and middle school level and to development or improvement of courses providing help for students who have difficulty mastering these standards.
>
> *Finding 3.* Available evidence indicated that many courses of initial instruction and remedial courses had only limited effectiveness in helping students master the required standards.
>
> *Finding 4.* Lack of prerequisite skills may have prevented many students from receiving the benefits of courses that provided instruction in relevant content standards. Lack of student motivation and lack of strong parental support may have played contributing roles in limiting the effectiveness of these courses.
>
> *Finding 5.* Many factors suggested that the effectiveness of standards-based instruction would improve for each succeeding class after the Class of 2004, but the speed with which passing rates will improve remained unknown.

The report did not offer a specific recommendation on whether the CAHSEE requirement should be deferred. The report suggested the Board consider the issue in terms of the following tradeoffs:

- schools losing motivation for continued attention to students not achieving critical skills if the requirement were deferred; and
- educators becoming distracted by debates and legal actions concerning the adequacy of current instruction if the requirement were continued.

Balancing these tradeoffs required that the Board make a policy decision. The report offered several specific suggestions for consideration if the requirement were continued and other suggestions in the case that the requirement would be deferred. Ultimately, the Board decided to defer the requirement until the Class of 2006. Please see the California Department of Education website [http://www.cde.ca.gov/ta/tg/hs/evaluations.asp] for further details on this special study.

The second biennial report of the CAHSEE evaluation was issued in February 2004 (Wise et al., February 2004a). This report summarized evaluation activities and findings since the first biennial report (Wise et al., January 2002a). The report included

information on the 2002 and 2003 administrations and the AB 1609 study and included specific recommendations to the Legislature, the Governor, and the Board as presented in the Summary of Year 4 Activities above.

Summary of Year 5 Evaluation Activities (September 2004)

The Year 5 evaluation activities, which constituted the final year of the original evaluation contract, included reviewing and analyzing three types of information:

Test Developer Plans and Reports. HumRRO continued to monitor test development activities and reports. These included changes to test administration procedures, equating alternate test versions, and changes to reporting procedures.

Operational CAHSEE Data. HumRRO analyzed results from the three operational administrations of CAHSEE in February, March, and May of 2004. These were the first administrations to students in the Class of 2006, the first class now required to pass the CAHSEE for high school graduation.

Longitudinal Surveys of District and School Sample Personnel. We began in 2000 with a representative sample of 24 districts and approximately 90 of their high schools. The number varied slightly from year to year as districts and or schools declined to participate for the year or dropped out completely and were replaced. The 2004 sample included 26 districts (a result of contacting two districts in 2003 as replacements and one declining district agreeing to participate) and 86 schools that did not require any replacements. The surveys, which were administered to principals and ELA and mathematics teachers, provided a continuing look at schools' perspectives of the impact of the CAHSEE on their programs. In addition, testing coordinators were surveyed for the third year to identify issues with the administration of the CAHSEE.

The Year 5 report (Wise et al., September 2004b) of evaluation activities summarized findings from the data that were analyzed for students in the Class of 2006 who took the CAHSEE as 10th graders during the 2003–04 school year and compared these findings to results from the 2002–03 administrations for 10th grade students in the Class of 2005 to look at trends across these two classes. The report stated that performance on the CAHSEE mathematics test improved significantly for the Class of 2006 relative to the Class of 2005 (accounting for differences in score scales). Passing rates for ELA were largely unchanged. Overall, 64 percent of the 10th graders in the Class of 2006 passed both parts, and performance improved for all demographic groups except students receiving special education services. We found no increase in dropout and retention rates despite teachers' and principals' predictions that the CAHSEE requirement would lead to such increases. Principals reported significant increases from 2002 to 2004 in full implementation of programs and practices to help students who are not prepared to pass the CAHSEE and to promote learning for all students. Principal estimates of parents' knowledge of the CAHSEE increased significantly in 2004. Finally,

about 90 percent of the students tested reported that most or all of the topics on the test were covered in courses they had taken.

Based on these findings and those included in prior reports, HumRRO offered the following four general and one more specific recommendations:

General Recommendation 1. Keep the CAHSEE requirement in place for the Class of 2006 and beyond.

General Recommendation 2. Continue efforts to help students prepare for and take more challenging courses.

General Recommendation 3. Encourage efforts to identify remedial programs that work and disseminate information about these programs to all schools.

General Recommendation 4. Continue to explore options for students receiving special education services (e.g., set realistic expectations, allow more time, investigate curricula, and collect accommodation information).

Specific Recommendation 1. Work to implement a system of student identifiers and student records that provide information, including (a) CAHSEE passing status, (b) students on track to graduate with their class, (c) students who have been retained, and (d) students who have dropped out.

Summary of 2005 Evaluation Activities

The first year of the evaluation continuation contract included reviewing and analyzing the same three types of information plus some additional requirements:

Test Developer Plans and Reports. HumRRO continued to monitor test development activities and reports. These included changes to test administration procedures, equating alternate forms, and changes to reporting procedures. As part of our review, we conducted independent analyses leading to the conversion tables used to place number correct scores from the February 2005 administration on the common, equated reporting scale. Results confirmed the conversion tables proposed by ETS. We also attended meetings of the Technical Advisory Group where technical issues relating to CAHSEE development, administration, and reporting were discussed.

Operational CAHSEE Data. We analyzed results from the operational administrations of CAHSEE to 11th graders in September and November of 2004 and to both 10th and 11th graders in February, March, and May of 2005. Tenth grade students took the CAHSEE for the first time in February, March, or May of 2005. Eleventh grade students, who had not yet passed, could take the CAHSEE twice more in any of the five administrations. In addition to investigating test score reliability, a key issue was the degree of progress made by students in the Class of 2006 who had not yet met the CAHSEE requirement. A second key issue was the success rates for students in

different demographic groups, most notably English learners and students receiving special education services. The operational test data also included a brief survey that students completed after each day of testing.

Instruction Study—Academic Standards Tested by the CAHSEE. We conducted a study similar to one conducted in 2003 and specified under AB 1609 legislation. The current study included surveys to all districts with high schools that had CAHSEE results (467), a representative sample of 400 high schools, and a sample of 97 feeder middle schools. We also sampled 50 high schools and 24 associated feeder middle schools for site visits.

Item Review Workshops: HumRRO conducted two sets of item review workshops in early June 2005. The workshops were held in the northern and southern parts of the state, and participants were teachers and curriculum specialists familiar with the ELA and mathematics content standards. The reviews covered item quality, Universal Test Design, content alignment, depth of knowledge, and overall coverage. The items reviewed were the most recent ones available, including some operational items.

Organization and Contents of 2005 Evaluation Report

The 2005 Evaluation Report covers activities performed in the independent evaluation through September 30, 2005.

Chapters 2–7 of the current report describe activities conducted during 2005, the first year of the evaluation continuation contract, and present the results of these activities. The final chapter describes the main findings from these results and our recommendations based on them. The 2005 Evaluation Report satisfies a contractual requirement to report on evaluation activities each year. Several recommendations HumRRO made during the original contract helped to improve the quality and effectiveness of the exam and its use.

Chapter 2 presents analyses of the item review workshops, which covered item quality and Universal Test Design. The results show the degree to which CAHSEE test questions were aligned to and covered the target content standards and the extent to which questions were written to maximize access by all students according to principles of Universal Test Design.

Chapter 3 presents analyses of the 2004–05 CAHSEE administrations. The results include passing rates for 10th graders in the Class of 2007 in comparison to last year's passing rates for 10th graders in the Class of 2006; passing rates and score gains for 11th graders in the Class of 2006 who did not meet the CAHSEE requirements during their sophomore year; analyses of test modifications and accommodations; and analyses of factors such as mathematics courses taken that were related to success on the CAHSEE.

Chapter 4 presents evidence of the effectiveness of instruction for the Class of 2006. The results show information about instruction provided by schools and districts and the relationship of such instruction to school-level passing rates, factors that limit the effectiveness of current instruction, and district and school staff's conclusions about the Class of 2006.

Chapter 5 describes results from the 2005 Instruction Study surveys examining the impact of the CAHSEE requirement on instruction and remediation. The analyses include findings at the high school and feeder middle school levels regarding coverage of the California Academic Content Standards, specific courses related to the targeted content standards, remediation programs targeted to the CAHSEE, programs targeted to students receiving special education services, and programs targeted toward English learners.

Chapter 6 presents results of student preparedness through analyses of data on enrollment trends, graduation and dropout rates, college preparation, Advanced Placement (AP) test achievement, and responses to the student questionnaire administered at the end of each testing session. The student questionnaire analysis includes changes in expectations for graduation and post-high-school plans for 10th grade students in the Class of 2007 who completed questionnaires in February, March, and May of 2005 and also for 11th grade students who took the CAHSEE for a second or third time in September or November of 2004 or February, March, or May of 2005.

Chapter 7 provides information about options for students receiving special education services identified in a special study required under SB 964. The results show the feasibility and difficulties of implementation and potential impact of recommendations for alternative testing, alternative graduation requirements, and alternative types of diplomas.

Chapter 8 presents our Findings and Recommendations based on the existing state of data analyses and results.

Chapter 2: Quality and Accessibility of CAHSEE Exam Items

Introduction

As part of the ongoing evaluation of the California High School Exit Exam (CAHSEE), HumRRO conducted item review workshops in June 2005 with California content experts in mathematics and English-language arts. This chapter presents the results of the two workshops, one held in northern California and one held in southern California.

The 2005 item review workshops involved two related activities to monitor the quality and accessibility of the CAHSEE. In particular, HumRRO carried out investigations of: (a) the degree of alignment between the CAHSEE test items and the academic content standards, and (b) the degree of accessibility of the test items and format for various student populations by examining elements of universal test design. An alignment study evaluates the extent of content overlap between the test items and the content standards, examining whether the material on which students are assessed is the same as what they are expected to know. A universal test design study examines a test for appropriate format, scope, and content relative to the range of students who will be taking that assessment, such as students with limited English language proficiency and students with disabilities. The results of these kinds of investigations contribute to estimations of test validity.

The 2005 workshops expanded upon CAHSEE item review workshops that we conducted in 2000 and 2002. The purpose of the 2000 workshop was to examine the alignment of the newly developed field-test items against the content standards and classroom curriculum. In that workshop, educators from California assessed the items against their intended content standards by rating the degree of match between them. Overall, these reviewers determined that approximately 77 percent of English-language arts (ELA) items and 92 percent of math items matched well with the content standards for which they were developed. At that time, test blueprints had not yet been approved and test forms had not yet been constructed. We thus concluded that the test item pool as a whole represented the standards well. Reviewers also evaluated whether students would be able to answer the items based on their school's curriculum. In this case, the panelists found that the majority of items (90% for ELA and 65% for math) might be problematic for students based on the curriculum they received at that time. As a result, HumRRO recommended that curriculum specialists focus on bringing the curriculum more in line with the targeted content standards. More complete information is provided in Wise et al. (June 2000).

In 2002, the workshop panelists focused on the alignment of more recent CAHSEE test items with the content standards, and they compared the quality of these items with items in the 2000 review, many of which had become operational (i.e., used in calculating scores). Panelists used a rating system similar to the one used to evaluate alignment for the 2000 workshop. They determined that approximately 81 percent of ELA items and 83 percent of math items matched well with their target content

standards. Thus, reviewers judged the ELA items to align slightly better than in the 2000 review, while they judged the math items to align less well than in the previous survey, but still better than the ELA items. Alignment for ELA likely improved due to more specific scoring rubrics developed for the essay items. There was some variation in the alignment ratings across the specific content areas within each subject. For ELA, the lowest alignment ratings were for items measuring literary response and analysis (71% strong alignment). For math, lower alignment ratings were found for mathematical reasoning (50% strong alignment) and the seventh grade statistics, data analysis, and probability items (67% strong alignment). Panelists were asked reasons for low alignment ratings of specific items. One common response for the ELA items is that they measured skills that were foundational for the intended target, but at a lower depth of knowledge. See Wise et al., (June 2002) for more complete information.

Our 2005 item review provided an opportunity to address questions that arose with the revision to CAHSEE test specifications introduced in 2003–2004, when the exam was restarted for the Class of 2006. The Board made slight adjustments to the test blueprints and the test developer was released from the requirement of matching test difficulty to the original 2001 test form. The result of these revisions was a somewhat easier math test and a slightly more difficult ELA test. The Board also reset the performance level standards by keeping them at the same percent correct level (55% for math and 60% for ELA) as before. The result was that substantially more students passed the math test than would have with the previous versions. Questions thus arose as to whether the math test was better, with items focused more closely on specific requirements, or was weaker because the questions did not assess the full depth of the math standards.

Another key question concerned whether the questions provided a fair assessment for English learners and students with disabilities. Passing rates for these groups have been consistently lower than for other students. It was important to determine whether part of the performance gap might have resulted from features of the test questions that made them inappropriately difficult for these students.

In the 2005 item review workshops, HumRRO adopted a recently-developed method to assess both alignment and item quality. For the alignment process, we used the method created by Norman Webb (1997; 1999; 2005) and the Council of Chief State School Officers (CCSSO). In addition, we asked the National Center on Educational Outcomes (NCEO) to provide their expertise on universal design in the review of test accessibility (see *Considerations for Universally Designed Assessments*, NCEO, 2005).

Both of these activities provided further evidence of meeting the requirements of the No Child Left Behind Act (NCLB) of 2001. In the document on *Standards and Assessment Peer Review Guidance* (April, 2004), the U.S. Department of Education specified that state assessment systems must include these features. In particular, this document stipulated that:

> "Assessments must be aligned with State academic content and achievement standards, and they must provide coherent information about student attainment of State standards in at least mathematics and reading/language arts.
>
> The same assessment system must be used to measure the achievement of all students.
>
> The assessment system must be designed to be valid and accessible for use by the widest possible range of students, including students with disabilities and students with limited English proficiency (LEP)." (pp. 2–3)

In addition, the original NCLB documentation points to the need for an inclusive test design. Specifically, all assessments should "be designed from the beginning to be accessible and valid with respect to the widest possible range of students, including students with disabilities and students with limited English proficiency" (NCLB, Section 200.2(b)(2)). These test features fall under the umbrella of universal test design.

- The alignment and universal test design tasks in the HumRRO workshops focused on the mathematics and English-language arts questions in the test form administered in February 2005. This was the most recently available operational form.

The alignment and universal test design results are discussed in detail in two separate sections of this chapter. While both of these activities occurred within the same workshop, the method and analyses for alignment and universal test design involve distinct processes. The first part of this chapter discusses the alignment methods, results, and subsequent recommendations in the section entitled *"Item Review Workshops: Alignment of the CAHSEE to the Academic Content Standards"*. HumRRO facilitated the completion of the alignment tasks in the first part of the workshop. The second part of the chapter presents the methods, results, and recommendations for universal test design in the section *"Item Review Workshops: Universal Test Design of the CAHSEE."* The National Center on Educational Outcomes (NCEO) facilitated the completion of the universal test design review tasks in the second part of the workshop.

Item Review Workshops: Alignment of the CAHSEE to the Academic Content Standards

For the alignment tasks, HumRRO evaluated the level of content agreement between the CAHSEE test questions and the targeted mathematics and English-language arts standards. As a preface to the discussion of the alignment tasks and results, we first describe several core concepts related to assessment and alignment research.

Assessment-to-Standards Alignment

The term *alignment* refers to "the degree to which [content] expectations and assessments are in agreement" (Webb, 2005). Alignment analyses indicate the breadth,

or scope, of knowledge included in the assessment. In addition, alignment analyses examine the depth of knowledge, or cognitive processing, required of students by the assessment compared with the state's content standards. In other words, alignment analyses help to answer questions such as, "How much content is covered by the assessment?" "Is this content sufficiently similar to the expectations of the standards?" and "Are students asked to demonstrate this knowledge at the same level of rigor as expected in the content standards?"

Alignment concerns should be addressed early in the item development process. In fact, ETS has implemented a number of processes, from item writer training and guides through numerous reviews, to ensure that all items measure targeted content appropriately. The study reported here was not an attempt to review specific item development and review procedures employed by the test developer. Rather, it was an independent check of the test questions that come out of the end of these processes. As such, specific comments from our independent reviewers should be weighed against the judgments of the range of experts who reviewed these items previously.

California Academic Content Standards and Test Blueprints

The CASHEE test blueprints list a subset of the *California Academic Content Standards* identified by the High School Exit Exam (HSEE) Panel and approved by the Board as critical knowledge and skills for high school graduation. The blueprints draw on the full set of California Academic Content Standards across a range of grades, assign target numbers of test items to be included for each selected content standard.

The English-language arts (ELA) portion of the CAHSEE assesses content standards in reading and writing for Grades 9 and 10 as well as from Grade 8. The mathematics portion of the CAHSEE assesses selected California content standards from Grades 6 and 7 as well as for Algebra I. Table 2.1 shows specific content strands that cover the different content standards evaluated by the CAHSEE.

Table 2.1. Content Strands Assessed by the CAHSEE for ELA and Math

English-Language Arts Strands	Mathematics Strands
1. Word Analysis	1. Statistics, Data Analysis, and Probability
2. Reading Comprehension	2. Number Sense
3. Literary Response and Analysis	3. Algebra and Functions
4. Writing Strategies	4. Measurement and Geometry
5. Writing Applications (Genres and Their Characteristics)	5. Mathematical Reasoning
6. Writing Conventions	6. Algebra I

Webb Alignment Method

Several methods of alignment are in current use. Most methods involve ratings of several aspects of the assessment items relative to the content standards. The ratings are analyzed statistically to determine the extent of alignment. HumRRO used the alignment method developed by Norman Webb (1997; 1999; 2005) to evaluate the CAHSEE. The *Webb Alignment Method* includes specific criteria for judging the quality of alignment and is supported by CCSSO, an organization that assists states in measuring and meeting educational achievement goals. As a result, Webb's method has been used widely in other states. We present below some explanation of terminology related to Webb's method before describing the specifics of this methodology.

Standards Levels. Since HumRRO followed the *Webb Alignment Method* in this study, his terminology is used in this report to refer to different levels of content organization in the California standards documents. Based on evaluations of a number of states, Webb has found that standards documents generally are divided into two or three organizational levels. Webb labeled these common levels as: (a) standard, (b) goal, and (c) objective. A *standard* is the highest, most general level of the content expectations, often written as a broad content category. The results of the analyses are reported at the standard level, meaning how well the test items align with each of these broad content categories (Webb, 2005).

Often, standards documents include at least one additional level with more specific content expectations. A *goal* is the next (middle) level of the content expectations. The goal includes smaller topics or subcategories within the standard, often written as general performance expectations. One point made by Webb is that not all standards documents include a goal level. The CAHSEE standards for both mathematics and English-language arts do not always delineate a content expectation at this level; this absence does not affect the outcomes on the degree of alignment.

Finally, the *objective* is the lowest, most specific level of the content expectations. These statements identify individual tasks and knowledge expectations at a more detailed level than the goal level. Since assessment items are written at this level of specificity, reviewers rate items at the level of the objective per standard.

The *California Academic Content Standards* for English-language arts are organized around four levels including domain, strand, substrand, and standard (from most general to most specific). For consistency, Webb's labels and meaning for content expectations were applied to the California Academic Content Standards as shown in Table 2.2.

Table 2.2. Webb Labels Applied to California Academic Content Standards for English-Language Arts

Current Labels for California Academic Content Standards for English-Language Arts:

Domain	Strand	Substrand	Standard
Reading	1.0 Word analysis, fluency, and systematic vocabulary development	Vocabulary and concept development	1.1 Identify and use the literal and figurative meanings of words and word derivations.

Webb Labels Applied to California Academic Content Standards for English-Language Arts:

Standard	Goal	Objective
Reading 1.0 Word analysis, fluency, and systematic vocabulary development	Vocabulary and concept development	1.1 Identify and use the literal and figurative meanings of words and word derivations.

The California content standards for mathematics generally are organized into strands and standards. A *strand* refers to a broad content category, while *standard* refers to specific statements of content expectations. In contrast to Webb, the term *standard* for California refers to the most specific level of the content expectations. Again, these content expectations were relabeled to match Webb's method more closely as shown in Table 2.3.

Table 2.3. Webb Labels Applied to California Academic Content Standards for Mathematics

Current Labels for California Academic Content Standards for Mathematics		
Strand	**Standard**	(No comparable level)
Grade 7-Number Sense	1.0 Students know the properties of, and compute with, rational numbers expressed in a variety of forms: 1.1 Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation.	

Webb Labels Applied to California Academic Content Standards for Mathematics		
Standard	**Goal**	**Objective**
Grade 7-Number Sense	1.0 Students know the properties of, and compute with, rational numbers expressed in a variety of forms:	1.1 Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation.

Webb Alignment Criteria. The Webb method evaluates alignment between assessments and standards by measuring four criteria:

1. categorical concurrence
2. depth of knowledge consistency
3. range of knowledge correspondence
4. balance of representation

The statistical procedures used to evaluate these criteria allow for judgments about the degree of alignment for each content area within a state's standards document. An overall alignment judgment across the entire assessment and standards document, however, is not appropriate.

For a complete analysis of alignment, all four of Webb's criteria must be considered together. However, each criterion provides different information about the degree of alignment between the assessment and content standards. A brief description of each criterion is presented here.

Categorical concurrence is a basic measure of alignment between standards and test items. This term refers to the proportion of overlap between the content stated in the standards and that assessed by items on the test. To find the degree of concurrence, researchers counted the number of items that each rater judged as assessing each standard. Since each reviewer assigned standards to items, the

average number of items linked with a standard should be calculated across all of the reviewers' responses. For example, if Reviewer A assigned a standard six items, Reviewer B assigned seven items, and Reviewer C assigned eight items, then the average number of items assigned to that standard is seven[2]. Webb maintains that standards should be assessed by a minimum of six items for acceptable categorical concurrence. Webb (1999) suggested that six items can "produce a reasonably reliable scale for estimating students' mastery of content on that scale" (p. 7). Hoffman, Diaz, and Dickinson (2005) demonstrated that even seven items may not produce a reliable estimate of student-level scores. Ideally, a standard would be linked with an even larger number of items. However, practical constraints, such as time allotted for testing, limit test length.

Depth of knowledge (DOK) measures the type of cognitive processing required by items and standards. For example, is a student expected to simply identify or recall basic facts, or is the student expected to use reasoning by manipulating information or strategizing? In mathematics, a student may be asked to identify the appropriate use of a decimal among several answer choices. This task should be less complex than trying to explain the concept of a decimal and how and why it can be moved. In English-language arts, asking a student to identify Greek mythology requires less processing compared with asking a student to use knowledge of Greek mythology to understand the origin and meaning of new words.

The purpose of using depth of knowledge as a measure of alignment is to determine whether the item and corresponding standard are both written at the same level of cognitive complexity. Reviewers make two separate judgments about cognitive complexity, one for the standard and one for the item. These two judgments are compared to determine whether the item is written at the same level as the standard to which it is linked. Webb refers to his comparison as *depth of knowledge consistency*.

Another measure examines the ***range of knowledge*** *correspondence* between the test items and content standards. The range of knowledge measure looks at the breadth of knowledge represented by test items in greater detail. Categorical concurrence simply notes whether or not a sufficient number of items on the test covers each general content topic (individual standards). However, states generally lay out more specific content objectives under each standard. The range indicates how many of these content objectives are assessed by items.

Recognizing that a given standard may contain more content objectives than can be included in one test, Webb (1999) requires that only a single item be linked to an objective in order for that objective to be counted. Webb suggests that at least 50 percent of the objectives for a standard should be matched with one or more items to demonstrate acceptable range-of-knowledge correspondence.

Finally, the ***balance of representation*** criterion focuses on content coverage in yet more detail. In this case, the number of items matched to the content objective does

[2] To obtain the average of 7, one would use the following formula: (6+7+8)/3 = 7.

matter. The balance of representation determines whether or not the assessment measures the content objectives equitably within each standard. Based on Webb's method, items should be distributed in an even way across the objectives per standard for good balance.

The balance of representation is determined by calculating an index, or score, for each standard. Each standard should meet or surpass a minimum index level to demonstrate adequate balance.

The specific calculations needed for each criterion will be presented in the Alignment Results section.

Alignment Workshop Methods and Procedures

HumRRO conducted two separate workshops, one in northern California and one in southern California, to obtain a representative sample of current educators. The first day of each workshop was devoted to alignment evaluation, while the second day was devoted to universal test design. A description of the universal test design outcomes will follow in the second section of this chapter.

HumRRO staff conducted both workshops in the same way, using identical procedures and materials (e.g., rating forms). As a result, the methodological details of the two workshops are described overall instead of as two separate events.

Workshop Participants. We contacted a total of 310 districts to recruit content experts for participation in the workshops. In addition, we made direct contact with 80 school administrators and 30 teachers. A considerable effort was made to represent various groups equally (e.g., English learners, and students with disabilities). From these contacts, a total of 26 teachers and curriculum specialists participated in the workshops. Six of these reviewers had attended the HumRRO Item Review Workshops in 2002. Six additional reviewers, including two EL specialists and one special education specialist, had to cancel at the time of the workshop due to unexpected circumstances.

Of these panelists, one individual in each workshop served as a point of reference regarding students with specific physical impairments. In the northern California workshop, a representative from a California School for the Blind fielded questions concerning the abilities and expectations for visually impaired students. In the southern California workshop, a representative from a California School for the Deaf fielded questions related to hearing impairments. These two individuals did not serve as reviewers in the alignment analysis so that they could be available for both the math and ELA content groups.

Table 2.4 lists the number of remaining panelists (24) that served as alignment reviewers by content area and current position.

Table 2.4. Panelists by Content Area and Current Position

Current position	English-language arts panelists	Mathematics panelists
Teacher, regular classroom	5	4
Teacher, special education	3	2
Teacher, EL	1	0
Curriculum Specialist	3	7
Total:	11	13

Table 2.5 includes the years of experience for these panelists. This information is broken down by region.

Table 2.5. Experience Level of Panelists

Content Area	Region	Less than 5 years	5–9 years	10–19 years	20 or more years
ELA	Northern	1	3	1	2
	Southern	0	1	1	2
Math	Northern	0	1	2	1
	Southern	0	1	5	3
Total		1	6	9	8

Materials. Reviewers evaluated the alignment between the assessments (mathematics or English-language arts) and their corresponding standards using Webb's alignment methods and rating forms.

*Test Forms***.** Reviewers assessed the February 2005 test form of the CAHSEE for English-language arts and mathematics. The test developer, ETS, provided HumRRO with a copy of these test forms as well as the item specifications. Table 2.6 presents the general format for each test.

Table 2.6. Test Item Composition by Content Area

Content Area	Total Items	Core Items	Field Test Items	Selected Response Items	Constructed Response Items
ELA	80	73	7	79	1
Math	92	80	12	92	0

Similar to most standardized assessments, the February 2005 test form includes both core items and field test items. Field test items include those items that are being evaluated for use on future exams, while core items are used to score the students. The core items have been field tested previously. Since only core items are used to compute scores, alignment analyses focused on core items.

Blueprints. Reviewers compared the mathematics and English-language arts items from the February 2005 test forms with the CAHSEE test blueprints[3]. As explained earlier, the assessment was compared with the test blueprint to ensure a more fair evaluation of alignment.

The CAHSEE test blueprints for mathematics and for English-language arts include a set number of assessed standards, goals, and objectives (Webb's terminology). The total numbers of each are presented in Table 2.7. One particular standard for ELA, Writing Applications, varies per test administration in the specific objective(s) assessed.

Table 2.7. Number of Standards, Goals, and Objectives for Math and ELA

Content Area	Standards	Goals	Objectives
English-language arts	6	17	32
Mathematics	7	26	53

Rating Forms and Instructions. Reviewers used two rating forms to make judgments about the standards and the assessment items separately. For the CAHSEE blueprints, reviewers used the Depth-of-knowledge (DOK) Rating Sheet to evaluate each assessed content objective. This rating form (for both mathematics and English-language arts) paralleled the format of CAHSEE blueprints with the addition of a space next to each objective in which to place the DOK rating (see Appendix D).

For the assessment items, reviewers used the Item Rating Sheet to evaluate each item on DOK and the primary and secondary content objectives linked with the item. A sample of the assessment rating form can be found in Appendix D.

To perform the alignment task, reviewers received a copy of the Alignment Instructions and Definitions sheet. This sheet explained how to use each rating form with several examples. The sheet also included definitions for each DOK level, as shown in Table 2.8.

Table 2.8. Depth of Knowledge Levels from Alignment Instructions Sheet

Level	Title	Description
Level 1	Recall	Item requires simple recall of information, such as facts, definition, terms, or procedures.
Level 2	Skills/Concepts	Item calls for engagement in some mental processing and decisions beyond habitual response.
Level 3	Strategic Thinking	Item requires students to reason, plan, and use evidence.
Level 4	Extended Thinking	Item requires complex reasoning, planning, and thinking, typically over an extended period of time.

[3] The CAHSEE test blueprints for mathematics and English-language arts can be found on the CDE website. These blueprints were approved by the State Board of Education July 9, 2003.

*Debriefing Form***.** Reviewers completed Webb's debriefing survey at the end of the alignment tasks. This survey requested reviewers' overall impressions of the degree of alignment in a series of five questions (see Appendix D).

Procedures. The workshops began with an introduction of staff and observers. Panelists then read and signed an affidavit of non-disclosure regarding any secure materials they would be reviewing over the two-day workshop. HumRRO staff gave a brief presentation on alignment and the tasks reviewers would perform.

Panelists split into two groups in separate rooms, one group with ELA reviewers and one group with mathematics reviewers. A HumRRO staff member facilitated each group by discussing the rating procedures in more detail, training reviewers on sample standards and assessment items, and answering questions about the alignment process. HumRRO staff provided general suggestions and comments when appropriate; however, they emphasized to reviewers that staff would not give explicit direction on how to rate standards or items because reviewers were valued as content experts.

After reviewing sample DOK evaluations as a group, reviewers proceeded to rate the objectives in the blueprint document. They first made independent evaluations without discussion. Once all reviewers had completed their ratings, the HumRRO member led the group through a discussion of the objectives to achieve consensus DOK ratings.

Reviewers then received more specific instructions on rating the assessment items. In particular, reviewers were instructed to assign a *primary objective* to an item based on a judgment that an item clearly measured an objective. Furthermore, reviewers were told to assign *secondary objectives* only if the item seemed to assess another objective as clearly as the primary objective. This instruction was based on Webb's method. Reviewers then proceeded to evaluate and discuss five released sample items as a group. After completing the sample items, reviewers rated the February 2005 CAHSEE test items. These ratings included an analysis of depth of knowledge and standard/objective match per item. Once reviewers completed their ratings, the HumRRO staff member reviewed several of the items to evaluate consensus. Consensus on all items was not achieved due to time constraints. Finally, reviewers completed the debriefing survey before departing for the day.

Alignment Results

In this section of the alignment report, we present the results for each criterion for English-language arts and mathematics. These results are organized by Webb's four criteria. Again, we emphasize that Webb's terminology is used due to the structure of his analyses. Specifically, we refer to *standard*, *goal*, and *objective* in substitution of the California terms *strand*, *substrand*, and *standard.* However, the hierarchy (from broadest to most specific content expectation) is the same.

All of Webb's measures begin with calculations for each rater and build up to a summary of results across both raters and standards. Under each criterion, the results for ELA are presented first, followed by the results for math, for consistency.

At the end of the Alignment Results section, we also include a brief summary of reviewers' comments. Reviewers were given the opportunity to make notations about items during the item rating period. In addition, they completed the Debriefing Survey, which asked for impressions about overall alignment.

Rater Agreement Levels. Each test question is targeted to a particular standard and objective by the test developer. The objective-level assignments are used in test development to ensure that each form follows the test blueprint in terms of the number of items measuring each objective. The assignment of items to test standards (strands) is particularly critical as they determine which items are used in reporting information at the subscale level.

The Webb alignment process does not include assessing the extent to which reviewers' placement of items agrees with the operational placement of the test items. Before turning to the results of the Webb process, we provide a brief analysis of the agreement of the workshop participants with the operational placement of each item. Table 2.9 shows the percent of time the standard and objective an individual rater assigned an item to agreed with the assignment of the test developer.

The raters generally agreed with the placement of the items with respect to the standards used in subscale reporting, but frequently disagreed with the particular objective within that standard that the item assesses. The lowest agreement rates were for the essay question, treated here as a single item under writing applications. Most of the reviewers believed that the essay also measured objectives under Writing Strategies. Also, only one essay is included in each form and so not all objectives under Writing Applications are covered. Reviewers consistently wanted to assign the essay to additional objectives and the result was a very low agreement rate at the level of objectives. Reviewers also linked some of the Writing Strategies items to objectives under Written and Oral English Language Conventions.

For mathematics, the agreement rates were generally higher. The primary area of disagreement was under Algebra and Functions, where some reviewers linked items to objectives targeted operationally for Algebra I objectives.

Table 2.9. Agreement of Workshop Participants with the Operational Standards and Objectives Assigned by the Test Developer

Standard Number	Standard (Strand)	Targeted Number of Items	Percent of Raters Assigning the Targeted Standard	Percent of Raters Assigning the Targeted Objective
	ELA			
1	Reading-Word Analysis, Fluency, and Systematic Vocabulary Development	7	79%	79%
2	Reading Comprehension (Focus on Informational Materials)	18	66%	35%
3	Reading-Literary Response and Analysis	20	85%	53%
4	Writing Strategies	12	67%	26%
5	Writing Applications (Genres and Their Characteristics)	1	52%	52%
6	Written and Oral English Language Conventions	15	87%	87%
	Total	73	76%	53%
	Mathematics			
1	Statistics, Data Analysis, and Probability	13	87%	76%
2	Number Sense	17	86%	69%
3	Algebra and Functions	20	73%	57%
4	Measurement and Geometry	18	91%	67%
5	Algebra I	13	85%	67%
	Total	80	87%	76%

Note: Mathematics reasoning items were also targeted to one of the above five content areas. These items are included under their primary content designation in the table above to avoid duplication. This increases the item counts for some strands above the minimum specified in the exam blueprints.

Categorical Concurrence. Categorical concurrence is a basic measure of alignment between standards and test items. This measure indicates how much general emphasis each standard receives on an assessment. To determine categorical concurrence, we first simply counted the number of items that each reviewer judged as assessing each standard. Next, we calculated the mean statistic (M) across all of the reviewers to find the average item rating per standard. Webb suggests that the mean number of items per standard should be at least six for acceptable content coverage. In addition to calculating the mean, we assessed the amount of variation between the reviewers, which is referred to as the standard deviation (S.D.). This statistic provides information about how much, or far, reviewers' ratings diverged from the mean number. A mean and a corresponding standard deviation were calculated for each standard.

Table 2.10 shows the results for ELA and for math averaged across reviewers from each workshop. Starting with Column 1, the table lists the number of standards per content area, the title of the standard, the target number of items listed in the test blueprint, the average number of items matched by reviewers, and the conclusion of this alignment analysis. The bottom row under each content area indicates the total number of items included in the blueprint and matched by reviewers.

Table 2.10. Categorical Concurrence: Mean Number of Core Items per Standard

Standard Number	Title of Standard	Number of Items Per Standard			At Least Six Items
		Target Number	Mean Number Matched	Standard Deviation	
			ELA		
1	Reading—Word Analysis, Fluency, and Systematic Vocabulary Development	7	8.36	2.62	YES
2	Reading Comprehension (Focus on Informational Materials)	18	10.55	3.36	YES
3	Reading—Literary Response and Analysis	20	20.09	5.11	YES
4	Writing Strategies	12	10.36	4.15	YES
5	Writing Applications (Genres and Their Characteristics)	1	1.00	1.34	NO*
6	Written and Oral English Language Conventions	15	14.18	5.21	YES
	Total	73	64.55	6.78	
	Percent of standards with at least six items				83%
			Mathematics		
1	Statistics, Data Analysis, and Probability	12	10.69	1.70	YES
2	Number Sense	14	14.69	2.18	YES
3	Algebra and Functions	17	16.15	3.02	YES
4	Measurement and Geometry	17	17.85	2.82	YES
5	Mathematical Reasoning	8	3.31	1.80	NO**
6	Algebra I	12	13.62	2.66	YES
	Total	80	76.31	2.42	
	Percent of standards with at least six items				83%

*Note. This standard corresponds with the writing item. The item links with several objectives within the standard as intended in the test blueprints.
**Note. Mathematical reasoning is a process rather than a content area. Items that assess mathematical reasoning also assess one of the other content standards.

*English-Language Arts***.** For ELA, Table 2.10 shows that the mean across raters for the standard *Reading—Word Analysis, Fluency, and Systematic Vocabulary Development* is 8.36 items with a standard deviation of 2.62. This finding agrees closely

with the blueprint target for this standard, which is 7 items. In comparison, the mean number of items matched to the standard *Reading—Literary Response and Analysis* is 20.09 items with a standard deviation of 5.11. A higher standard deviation generally points to more variability in the ratings of each reviewer, which means that some reviewers' ratings are further away from the average. For example, the actual number of items matched to this standard by reviewers ranged from 4 to 25 items.

Based on these results, five of the ELA standards are represented adequately by the core items on the assessment. It should be noted that, while the standard *Writing Applications (Genres and Their Characteristics)* does not match a sufficient number of items based on the Webb method, this standard corresponds with the constructed response (essay) item. This outcome reflects the intended design of the test blueprint.

*Mathematics***.** For math, the reviewers' item ratings met the minimum level of acceptable concurrence for five of six standards. For these five standards, the number of items matched the target numbers in the blueprints closely. The exception was *Mathematical Reasoning* (M = 3.31). For this content area, reviewers matched fewer items than were targeted in the blueprints.

Mathematical Reasoning is a complex standard to assess. All of the math items designed to assess reasoning ability also assess one of the content standards. Thus, there are number sense reasoning items, measurement and geometry reasoning items, and so on. As in prior reviews of CAHSEE items (Wise et al., 2000; Wise et al., 2002), the workshop participants were more likely to match these items to the content category rather than to this "process" standard. Difficulties in developing a clear specification of the reasoning process are not unique to this exam. *Further consideration should be given to the specification of objectives for this standard when revisions to the content frameworks are next considered*. Note that separate score information is not reported for mathematical reasoning, as it is for the other strands. Consequently, low categorical concurrence results for this standard are not as critical.

Depth of Knowledge Consistency. *Depth of knowledge* (DOK) measures the type of cognitive processing required by items and content objectives. The purpose of evaluating depth of knowledge as an alignment measure is to determine whether the item and corresponding objective are both written at the same level of cognitive complexity.

To make these judgments, reviewers first determined the DOK level for each objective of a standard using a rating scale (see Table 2.8 for Webb's guidelines). Next, as they reviewed items, they rated the level of processing needed to answer the question using the same DOK rating scales. These two separate judgments about cognitive complexity (one for the standard, one for the item) then were compared to determine the proportion of items written at the appropriate level. Webb refers to this comparison as *depth of knowledge consistency*.

Table 2.11 includes the depth of knowledge consistency results for ELA and math. Since reviewers evaluated depth of knowledge for the *objectives* within a standard, the table refers to consistency between the items and objectives. The middle columns in the table include the mean percentage of items rated below the objective DOK level, items at the same level as the objective, and items above the objective. Column 5 (last column) specifies whether or not the amount of DOK consistency was acceptable per standard as well as noting the sum percentage of items at or above the objective DOK level. The bottom row under each content area indicates the percentage of standards with at least 50 percent of items matching in depth of knowledge levels

Table 2.11. Depth of Knowledge Consistency: Mean Percent of Core Items with DOK Below, At, and Above DOK Level of Objectives

Standards		Mean Items per Standard	Depth of Knowledge Consistency						DOK Consistency (min 50% of Items At or Above)
			% Items Below		% Items At Same Level		% Items Above		
	Title		M	S.D.	M	S.D.	M	S.D.	
					ELA				
1	Reading—Word Analysis, Fluency, and Systematic Vocabulary Development	8.36	85	0.16	15	0.16	0	0	NO (15%)
2	Reading Comprehension (Focus on Informational Materials)	10.55	73	0.17	23	0.14	4	0.06	NO (27%)
3	Reading—Literary Response and Analysis	20.09	38	0.22	49	0.21	13	0.06	YES (62%)
4	Writing Strategies	10.36	55	0.30	39	0.25	6	0.11	NO (45%)
5	Writing Applications (Genres and Their Characteristics)	1.00	0	0	56	0.46	44	0.45	YES (100%)
6	Written and Oral English Language Conventions	14.18	48	0.26	38	0.22	14	0.29	YES (52%)
	Total	64.55	48	0.33	38	0.29	14	0.30	
	Percent of standards with 50% of item DOK at or above objective DOK:								50%
					Mathematics				
1	Statistics, Data Analysis, and Probability	10.69	39	0.19	51	0.17	10	0.16	YES (61%)
2	Number Sense	14.69	33	0.13	57	0.10	10	0.09	YES (67%)
3	Algebra and Functions	16.15	48	0.19	45	0.17	7	0.09	YES (52%)
4	Measurement and Geometry	17.85	37	0.20	51	0.16	12	0.09	YES (63%)
5	Mathematical Reasoning	3.31	33	0.28	61	0.33	6	0.15	YES (67%)
6	Algebra I	13.62	49	0.21	40	0.16	11	0.16	YES (51%)
	Total	76.31	35	0.14	52	0.07	14	0.10	
	Percent of standards with 50% of item DOK at or above objective DOK:								100%

*English-Language Arts***.** As shown in Table 2.11, the ELA reviewers found an acceptable level of consistency between the DOK levels of core items and corresponding objectives for three standards (numbered 3, 5, and 6 in Table 2.10).

The DOK levels of items matched with three standards did not meet the minimum level of acceptable consistency. For the standard *Reading—Word Analysis, Fluency, and Systematic Vocabulary Development,* reviewers determined that only 15 percent of items (1.25 of 8.36 items) assessed this standard at the appropriate level of cognitive complexity. For the standard *Reading Comprehension (Focus on Informational Materials,)* reviewers found that 27 percent of items assessed this standard at or above the depth of knowledge required by the standard. Finally, 45 percent of items matched the appropriate depth of knowledge level for the standard *Writing Strategies*. This outcome was close to the minimum level accepted by Webb (50%).

*Mathematics***.** The mean number of items at or above the DOK level of the objectives exceeded the 50 percent requirement for all six math standards. The degree of consistency ranged from 51 percent to 67 percent. Looking across the standards, an average of 35 percent of the items fell below the DOK level of the objectives

Range of Knowledge. Range of Knowledge measures how completely the test items cover the content objectives within each standard. The assessed objectives within a standard should be linked with at least one test question. Webb's minimum level of acceptability for range of correspondence is 50 percent per standard. This means that at least 50 percent of the objectives must be matched to an item.

We determined the range by counting the number of objectives linked with at least one item. Next, we calculated a percentage for each reviewer by comparing the number of objectives associated with items ("yes") to the total objectives for a given standard. Finally, these percentages were averaged across reviewers.

Table 2.12 includes the results for ELA and math. This table includes the number of content objectives listed in the blueprints per standard, the mean number of items per standard (from Table 2.9), the mean number of objectives linked with at least one item, and the conclusion for this alignment analysis. The bottom row list the percent of standards with at least one item matched to 50 percent or more of the objectives.

*English-language arts***.** The ELA reviewers found that the core items linked with a sufficient number of objectives for five of the six standards. This means that, for each of these five standards, at least half of the objectives were matched to one or more items. Thus, the correspondence between the breadth of content expected by these standards and that covered in the assessment was acceptable.

The standard *Writing Applications (Genres and Their Characteristics)* is supposed to be assessed by the single essay item. However, only three of the 11 reviewers matched the essay item to this standard. The remaining four reviewers matched the essay item to objectives in standards 1, 3, 4, and 6 of Table 2.11.

Table 2.12. Range of Knowledge: Mean Percent of Objectives per Standard Linked with Core Items

Standards				Range of Objectives				
Title	Number of Objectives	Mean Items per Standard	Objectives with At Least One Item		% of Total Objectives per Standard		Range of Knowledge Correspondence
			M	S.D.	M	S.D.	
					ELA		
1 Reading—Word Analysis, Fluency, and Systematic Vocabulary Development	2	8.36	1.91	0.30	95	0.15	YES
2 Reading Comprehension (Focus on Informational Materials)	6	10.55	4.00	1.10	67	0.18	YES
3 Reading—Literary Response and Analysis	12	20.09	7.55	1.57	63	0.13	YES
4 Writing Strategies	5	10.36	3.09	1.22	62	0.24	YES
5 Writing Applications (Genres and Their Characteristics)	26	1.00	1.50	1.14	4	0.04	NO
6 Written and Oral English Language Conventions	3	14.18	2.55	0.82	85	0.27	YES
Total	54	64.55	21	3.09	38	0.08	
Percentage of Standards with 50% of Objectives Linked to At Least One Item							83%
					Mathematics		
1 Statistics, Data Analysis, and Probability	7	10.69	4.69	0.85	67	0.15	YES
2 Number Sense	10	14.69	8.46	1.05	85	0.07	YES
3 Algebra and Functions	10	16.15	8.08	1.12	81	0.07	YES
4 Measurement and Geometry	10	17.85	8.31	1.11	83	0.09	YES
5 Mathematical Reasoning	6	3.31	1.83	1.03	31	0.18	NO
6 Algebra I	10	13.62	8.62	1.12	86	0.11	YES
Total	53	76.31	40	3.15	75	0.23	
Percentage of Standards with 50% of Objectives Linked to At Least One Item							83%

Mathematics. For math, these reviewers determined that the assessment adequately represented the range of content specified in five of six mathematics standards. Approximately 40 of the 53 objectives across these standards were matched to core items.

These reviewers judged that the core math items did not represent the range of knowledge well for the standard *Mathematical Reasoning*. In this case, only 31 percent of objectives (or 1.83 of 6) linked with items. This outcome falls below the level of acceptability, which means that less than half of the objectives for this standard were linked with items. As noted earlier under Categorical Concurrence, however, reviewers may have matched some of the items that assess math reasoning to other content areas.

Balance of Representation. The fourth measure of alignment included in the Webb method is *balance of representation.* This criterion focuses on content coverage in greater detail. While the range of knowledge tells us something about the number of objectives that are linked to at least one test item, the balance measure takes into account how many items are linked with each objective per standard. Items should be distributed rather evenly across the objectives for each standard to achieve good balance.

The content balance is determined by calculating an index, or score, for each standard. [4]. According to Webb, the minimum acceptable index for a single standard is 0.70 (on a scale of 0 to 1). To be clear, a standard may include more objectives than reviewers linked to items. Thus, only those objectives actually used by the reviewers are included in calculations of the balance index.

Table 2.13 presents the results on balance of content within the standards for ELA and math. Columns 2 through 4 repeat item and objective information from Tables 2.10 and 2.12. Column 5 reports the mean percentage of items matched to the objectives. These percentages fall under Balance of Representation because they reflect the basic distribution of items per standard, which relates to balance. Finally, Column 6 gives the mean balance index for each standard.

*English-language arts***.** Column 5 of Table 2.13 highlights that some objectives received greater emphasis than others on the assessment. For example, approximately 30 percent of items assessed the standard *Reading—Literary Response and Analysis* according to these reviewers. Nevertheless, the balance index met the minimum of 0.70 for each ELA standard. This means that, of the objectives matched to the assessment, the core items were distributed in a relatively even manner.

Mathematics. Table 2.13 shows that the math items also represented the content objectives well overall for each standard. All six standards achieved a balance index that surpassed the minimum 0.70 index.

[4] The exact formula for calculating the balance index is explained in detail in Norman Webb's (2005) alignment training manual: http://www.wcer.wisc.edu/WAT/index.aspx .

Table 2.13. Balance of Representation: Mean Balance Index per Standard

Standards				Balance of Representation				
	Objectives per Standard	Mean Obj. Linked with Items	Mean Items per Standard	Mean % of Items Linked to Standard (out of total items)		Mean Balance Index		Acceptability of Balance Index (0.70 or above)
		M	M	M	S.D.	M	S.D.	
				ELA				
1 Reading—Word Analysis, Fluency, and Systematic Vocabulary Development	2	1.91	8.36	13	0.04	0.77	0.14	YES
2 Reading Comprehension (Focus on Informational Materials)	6	4.00	10.55	16	0.05	0.82	0.08	YES
3 Reading—Literary Response and Analysis	12	7.55	20.09	31	0.08	0.73	0.07	YES
4 Writing Strategies	5	3.09	10.36	16	0.06	0.70	0.10	YES
5 Writing Applications (Genres and Their Characteristics)	26	1.50	1.00	3	0.02	0.92	0.14	YES
6 Written and Oral English Language Conventions	3	2.55	14.18	22	0.08	0.88	0.09	YES
Total	54	21	64.55	17	0.09	0.82	0.11	
Percentage of standards with a balance of representation index of 0.7 or greater								100%
				Mathematics				
1 Statistics, Data Analysis, and Probability	7	4.69	10.69	14	0.02	0.80	0.06	YES
2 Number Sense	10	8.46	14.69	19	0.03	0.78	0.02	YES
3 Algebra and Functions	10	8.08	16.15	21	0.02	0.72	0.03	YES
4 Measurement and Geometry	10	8.31	17.85	23	0.04	0.70	0.03	YES
6 Mathematical Reasoning	6	1.83	3.31	4	0.02	0.90	0.12	YES
7 Algebra I	10	8.62	13.62	18	0.04	0.73	0.05	YES
Total	53	40	76.31	17	0.08	0.76	0.09	
Percentage of standards with a balance of representation index of 0.7 or greater								100%

Reviewer Comments/Quality of Items. In addition to providing more standardized ratings of the core items, some reviewers gave written and verbal comments on the test items in space provided on their ratings sheets. A summary of these comments, including the number of reviewers who noted these issues, is provided for ELA and math separately.

Table 2.14 lists the types of comments made by the ELA reviewers. An average of two reviewers made comments on the ELA items. Again, most comments were made by less than half of ELA reviewers.

Table 2.14. ELA: Summary of Reviewer Comments on Items

Type of Comment	Percent of Reviewers (Total N=11)	Northern Workshop (N=7)	Southern Workshop (N=4)
No standard requiring students to demonstrate a particular skill (e.g., item asks to identify 'tone')	27%	2	1
Many items target more elementary skills than required by these standards.	27%	2	1
Some items can be answered without reading passage.	27%	2	1
Some items relate to a standard, but they are not clear examples of the standard.	45%	3	2
Unclear wording	36%	3	1
The poem may not be relevant to urban children or non-native speakers.	55%	3	3

Table 2.15 includes a summary of the types of comments made by the math reviewers. The table indicates the number of reviewers who made comments by region and the main theme of these comments. As the table indicates, less than half of the reviewers made these types of comments.

Table 2.15. Mathematics: Summary of Reviewer Comments on Items

Type of Comment	Percent of Reviewers (Total N=13)	Northern Workshop (N=4)	Southern Workshop (N=9)
No standard requiring students to demonstrate a particular skill (e.g., students to plot non-linear functions; compare ratios or fractions; display for a given set of data).	38%	3	2
Some items can be answered through "back-solving."	30%	1	3
Some items relate to a standard, but they are not clear examples of the standard.	46%	2	4
Unclear wording	38%	2	3

In addition to providing specific comments on individual items, reviewers also completed a *Debriefing Survey* to provide overall impressions on the degree of alignment. The survey, adapted from Webb (2005), includes four questions, as well as space for general comments.

A summary of responses per question is provided in Table 2.16 for mathematics. The responses were combined across the two workshops because responses were so similar. The comments represent individual responses for reviewers. Most responses and comments from these reviewers were positive, supporting the outcomes on the standardized ratings showing good alignment.

Table 2.16. Debriefing Survey for Mathematics: Summary Responses

Question	Response Options	Percent of Reviewers (N=13)	Comments
1.For each standard, did the items cover the most important topics you expected? If not, what topics were not assessed that should have been?	YES MOSTLY NO	54% (7) 31% (4) 15% (2)	• Concept of 'factoring' is the foundation for other concepts in algebra, but no items on this topic. • Seemed to be more items linked with algebra than listed in the blueprints. • Grade 6 Statistics was not covered. • A lot of emphasis on Number Sense. • Several basic algebra concepts were not covered.
2.For each standard, did the items cover the most important performance levels you expected? If not, what performance was not assessed?	YES MOSTLY NO	23% (3) 69% (9) 8% (1)	• Most items assessed at level 3 DOK. • Not all levels expected by a standard were covered. • Most items had lower DOK than expected in standards.
3.Was there any content you expected to be assessed, but found no items assessing that content? What was that content?"	YES MOSTLY NO	23% (3) 8% (1) 69% (9)	• No content assessed on functions. • More on algebra. • Some algebra was "light" on items. • Grade 7 Math Reasoning was assessed, but I had difficulty identifying which parts of the standard matched the items.
4.What was your opinion of the alignment between the standards and assessment: a.perfectly aligned. b.acceptable alignment. c.needs slight improvement. d.needs major improvement. e.not aligned in any way.	a. b. c. d. e.	0% 62% (8) 38% (5) 0% 0%	• Most questions seemed to be written with a specific objective in mind.

Table 2.17 shows the responses and comments from the ELA reviewers. While alignment outcomes were acceptable overall, reviewers took issue with several specific features of the exam. In particular, a number of reviewers considered the items to assess the elementary ELA standards more than the higher grade standards on which the CAHSEE is based. A second major theme pertained to exam accessibility for different types of students. Reviewers in the universal test design portion of the workshop reiterated these comments as well.

Table 2.17. Debriefing Survey for ELA: Summary Responses

Question	Response Options	Percent of Reviewers (N=11)	Comments
1.For each standard, did the items cover the most important topics you expected? If not, what topics were not assessed that should have been?	YES MOSTLY NO	18% (2) 45% (5) 36% (4)	• Some standards were "under-assessed": 2.4, 2.5, 2.7, 3.1, 3.3, 3.5. • Expected more questions asking students to synthesize reading. • Items vaguely address standards because they are examples of elementary standards. • I have a major concern that too many items are not aligned to our Grade 9–10 standards. • Many items tested skills below grade level.
2.For each standard, did the items cover the most important performance levels you expected? If not, what performance was not assessed?	YES MOSTLY NO	18% (2) 36% (4) 45% (5)	• Not a lot of items at DOK level 4. • Items were hard to assess because a single objective could hit several different levels. • Items seemed to ask students for lesser skills than the standards. • Many questions assessed DOK 1 and 2.
3.Was there any content you expected to be assessed, but found no items assessing that content? What was that content?"	YES MOSTLY NO	54% (6) 0% 46% (5)	• Expected to see more on Reading 3.1 • No content that was missed, but there are flaws in the way the standards are written. • Students were not often asked to "analyze", "interpret", or "explain".
4.What was your opinion of the alignment between the standards and assessment: a.perfectly aligned. b.acceptable alignment. c.needs slight improvement. d.needs major improvement. e.not aligned in any way.	a. b. c. d. e.	0% 9% (1) 64% (7) 27% (3) 0%	• Several standards seemed to test elementary school standards—general content matched but not the specific objectives in this level of standards. • There are too many reading passages, which take students a really long time. • Items do not really align well with the higher order tasks of the Grade 9, 10 standards. • No passages relate to experiences of minority, immigrant, urban students. • Seem to be some cultural/disability biases. • Concern for students with disabilities in taking this test. • The exam aligns more with elementary standards rather than 8th, 9th, or 10th.

Summary and Discussion of Alignment Results

In this section, we summarize the alignment results for English-language arts and mathematics. Summary alignment judgments are based on Webb (1999). Webb outlined a rubric of sorts with a range of alignment that can be applied to each criterion, under which 100 percent is considered fully aligned, 70–90 percent is highly aligned, 50–69 percent is partially aligned, and less than 50 percent is weakly aligned.

Webb's alignment method does not allow for a *single* judgment of overall alignment across the four criteria. However, one can get a sense of overall alignment between the assessments and standards by looking at all of the criteria together.

We also provide the specific alignment outcomes for each standard. Further explanation of the meaning behind these outcomes is given as well.

English-language arts. Table 2.18 displays the summary alignment outcomes for English-language arts. The numbers in each cell represent the percentage of ELA standards (out of six) that met the minimum level of acceptability for each criterion. The degree of alignment in each cell corresponds with Webb's ranges. These outcomes indicate that the CAHSEE English-language arts items aligned partially to fully with the six ELA standards.

Table 2.18. Degree of Alignment Between CAHSEE ELA Core Items and California Academic Content Standards on Four Content Criteria

Alignment Criteria Across Six English-language Arts Standards			
Categorical Concurrence	Depth of Knowledge Consistency	Range of Knowledge Correspondence	Balance of Representation
Highly Aligned (83%)	**Weakly Aligned (50%)**	**Highly Aligned (83%)**	**Fully Aligned (100%)**

Table 2.19 displays the alignment outcomes on the 73 core items per standard.

Table 2.19. ELA: Summary of Alignment Levels per Standard

Standards		Alignment Criteria			
		Categorical Concurrence	Depth of Knowledge Consistency	Range of Knowledge Correspondence	Balance of Knowledge Representation
1	Reading—Word Analysis, Fluency, and Systematic Vocabulary Development	YES	NO	YES	YES
2	Reading Comprehension (Focus on Informational Materials)	YES	NO	YES	YES
3	Reading—Literary Response and Analysis	YES	YES	YES	YES
4	Writing Strategies	YES	NO	YES	YES
5	Writing Applications (Genres and Their Characteristics)	NO	YES	NO	YES
6	Written and Oral English Language Conventions	YES	YES	YES	YES

Depth of knowledge consistency was below an acceptable level between the core items and three standards: (a) *Reading—Word Analysis, Fluency, and Systematic Vocabulary Development*, (b) *Reading Comprehension (Focus on Informational Materials)*, and (c) *Writing Strategies*. This means that fewer than 50 percent of the core items assessed student knowledge at or above the level expected in these content standards. While a low level of cognitive consistency may not be as problematic for an exit exam as for a grade-level assessment, the degree of disagreement between the assessment and these three content standards may be an issue that California wishes to consider for further review.

The alignment results for the standard *Writing Applications (Genres and Their Characteristics)* were below the minimum acceptable level on ***categorical concurrence***. While sufficient representation of content on an assessment is important, this outcome deserves a final caveat. The small number of items linked with this standard does match the organization of the test blueprint. In the CAHSEE English-language arts blueprint, the last page of the document specifies that the assessment will include one essay item. The content of the essay, meaning the goals and objectives from which it is derived, rotates randomly for each test administration. A single content goal and corresponding objectives are chosen for one test administration.

If the *Writing Applications (Genres and Their Characteristics)* standard were linked with multiple-choice items instead of an essay item, then the low alignment would be more problematic. Individual selected response items necessarily measure a more discrete and narrow content scope. In comparison, the format of a constructed response item can require students to demonstrate several areas of content knowledge at the same time.

The assessment-to-standard match on *Writing Applications (Genres and Their Characteristics)* also demonstrated narrow ***range of knowledge correspondence***. Again, the test blueprint does designate several objectives for assessment on each CAHSEE test form out of 26 possible objectives. On one hand, Webb's measure does not easily deal with unequal weighting of objectives, which partially contributed to the poor alignment for this standard. On the other hand, the low alignment can be attributed to the reviewers' judgments that only one to two of the intended objectives matched well to the essay item.

Mathematics. Table 2.20 displays the summary alignment outcomes for the core mathematics items. The alignment conclusions in each cell are based on Webb's standards. The table also indicates the percentage of mathematics standards (out of six) that met the minimum level of acceptability for each criterion. These outcomes indicate that the math items on the February 2005 CAHSEE test form aligned highly to fully with the six California Academic Content Standards for mathematics.

Table 2.20. Degree of Alignment Between Core CAHSEE Math Items and California Academic Content Standards on Four Content Criteria

Alignment Criteria Across Seven Mathematics Standards			
Categorical Concurrence	Depth of Knowledge Consistency	Range of Knowledge Correspondence	Balance of Representation
Highly Aligned (83%)	**Fully Aligned (100%)**	**Highly Aligned (83%)**	**Fully Aligned (100%)**

Table 2.21 presents the overall alignment outcomes per standard. These conclusions indicate whether or not (Yes or No) each standard was matched acceptably to items.

Table 2.21. Mathematics: Summary of Alignment Levels per Standard Across Workshops

Standards		Alignment Criteria			
		Categorical Concurrence	Depth of Knowledge Consistency	Range of Knowledge Correspondence	Balance of Knowledge Representation
1	Statistics, Data Analysis, and Probability	**YES**	**YES**	**YES**	**YES**
2	Number Sense	**YES**	**YES**	**YES**	**YES**
3	Algebra and Functions	**YES**	**YES**	**YES**	**YES**
4	Measurement and Geometry	**YES**	**YES**	**YES**	**YES**
5	Mathematical Reasoning	**NO**	**YES**	**NO**	**YES**
6	Algebra I	**YES**	**YES**	**YES**	**YES**

The ratings were consistent between the reviewers of both workshops. As noted in Table 2.21, these reviewers determined that the math items aligned at an acceptable level with four of six standards on all criteria.

The core math items aligned with all seven standards on two criteria. The level of ***depth of knowledge consistency*** was acceptable between the assessment items and all seven standards, meaning that the knowledge level assessed by the core math items was the same or higher as the knowledge level expected in the content standards. Additionally, the ***balance of representation*** indices were acceptable for all standards. The balance results suggest that the core items were distributed equitably across the content objectives selected within each standard. While the distribution of items to objectives was not perfect, a reasonable degree of content balance exists.

The core math items did not align acceptably with *Mathematical Reasoning*. In other words, fewer than six items each were matched to this standard. This problem with mathematical reasoning warrants further consideration.

The math reviewers also found unacceptable ***range of knowledge correspondence*** for the standard *Mathematical Reasoning*. This result indicates that these reviewers found the core math items to be associated with a small number of objectives for this standard (mean number of objectives across workshops = 1.25 out of 6 possible). The range of knowledge correspondence measure provides more specific information about the scope of content representation (within each standard) on the assessment.

Alignment Conclusions

The purpose of the 2005 alignment evaluation was to determine the level of content agreement between the February 2005 version of the CAHSEE and the designated California content standards for mathematics and English-language arts. Alignment between state academic standards and assessments is a requirement of the No Child Left Behind Act of 2001. This study serves as evidence of assessment-to-standards alignment for the CAHSEE.

Using the Webb method of alignment, HumRRO determined that the February 2005 test form did align with the content standards as specified in the test blueprints. As with many other states, the specific degree of alignment with the standards varied some per content area. Thus, California may wish to consider a review of those elements of the CAHSEE that aligned to the standards at lower levels. Such a review would be reasonable given the purpose of the CAHSEE as a high-school exit exam.

Table 2.22 provides a summary of the alignment outcomes for mathematics and for English-language arts. Based on Webb's method, separate alignment outcomes are presented for each criterion. The degree of alignment expressed in the table is based on the combined judgments of the reviewers from the northern and southern workshops per content area.

As Table 2.22 demonstrates, alignment levels for both content areas were similar. For mathematics, the core items covered the breadth and depth of the content expectations in the standards to a very high degree. For English-language arts, the ELA reviewers found that the core items represented the breadth of those standards to a high degree, while the items matched the depth of the content standards to a modest degree.

Table 2.22. Degree of Alignment Between Core CAHSEE Test Items and Relevant California Academic Content Standards for Math and ELA

Content Area	Alignment Criteria			
	Categorical Concurrence	Depth of Knowledge Consistency	Range of Knowledge Correspondence	Balance of Representation
ELA	Highly Aligned	Partially Aligned	Highly Aligned	Highly Aligned
Math	Highly Aligned	Fully Aligned	Highly Aligned	Fully Aligned

Item Review Workshops: Universal Design of the CAHSEE

For the universal test design tasks, NCEO evaluated the February 2005 CAHSEE test form to ensure that the format, wording, and content of the tests are accessible to a wide variety of students. We provide a brief discussion of universal test design, as well as the role of NCEO in developing guidelines for acceptable universal test design principles, before turning to the results.

Universal Design in the Environment and Education

Ron Mace, a wheelchair user and architect, originally coined the term *universal design*. In the mid-1970s, Mace became frustrated with watching his colleagues design structures that later had to be retrofitted to meet the needs of diverse users. In citing the need for creating structures from the beginning to be maximally accessible, Mace began advocating for structures that could meet the needs of wheelchair users, elderly people, children, and people with sensory disabilities that were, at the same time, easily accessible to non-disabled users.

The Center for Universal Design (1997), an architectural center housed at North Carolina State University, defined universal design as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.” Currently, universal design is commonplace in structures and products. Such design improves the quality of structures and products for disabled and non-disabled populations alike.

Examples of universal design can be found everywhere. Curb cuts, originally designed to allow wheelchair users access to sidewalks, are now frequently used by parents who have babies in strollers, bicycle riders, and shoppers using carts. Likewise,

closed captioning technology is now a legal requirement for all new television sets in the United States. This requirement was fought for and won by activists in the Deaf community. Currently, however, people with hearing impairments are only a fraction of those who use closed caption technology. Heath clubs, bars, people who watch television while their partner sleeps, and English learners all benefit from such technology.

Educators now also frequently use the term universal design to refer to classroom environments. The term *Universal Design for Learning* (UDL) employs technology and pedagogical practices such as differentiated instruction and individualized learning to make classrooms accessible to all learners. In terms of design, UDL does not mean that classrooms are ''one size fits all.'' Rather, UDL seeks to make classroom environments and instruction accessible to all students through flexible approaches to teaching.

Educators also use the term universal design to describe assessments that are fair and flexible (yet valid) for a wide variety of students. In 2002, NCEO synthesized research from a variety of fields to comprise a list of elements that best described what a ''universally designed assessment '' includes (Thompson, Johnstone, & Thurlow, 2002). NCEO's original list of elements included the following:

1. Universally designed assessments should be designed for an inclusive population.
2. Universally designed assessments should have precisely defined constructs.
3. Universally designed assessments should have accessible, non-biased items.
4. Universally designed assessments should be amenable to accommodations.
5. Universally designed assessments should provide simple, clear, and intuitive instructions and procedures.
6. Universally designed assessments should contain language and print that are maximally readable and comprehensible.
7. Universally designed assessments should have print and diagrams that are maximally legible.

Research by NCEO and Other Organizations

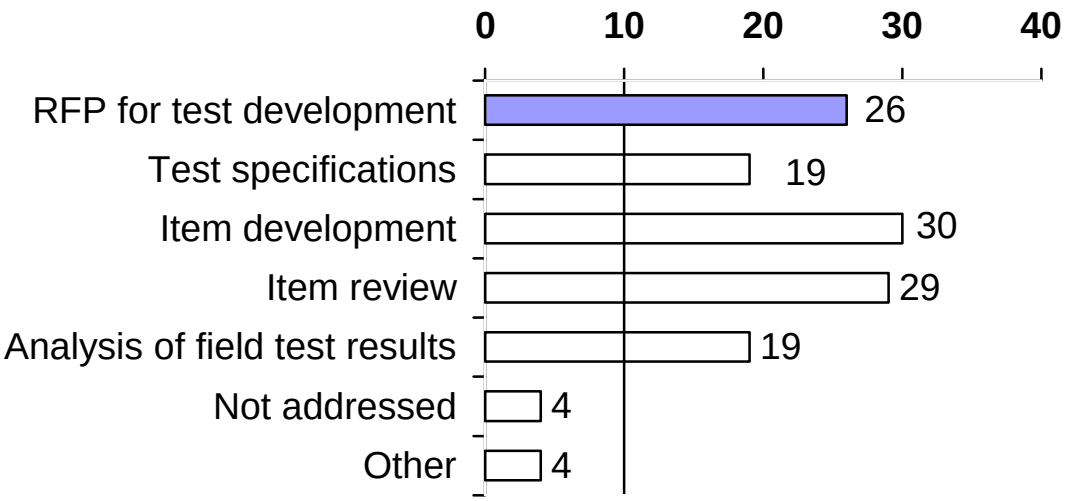
In 2003, the United States Department of Education funded its first research study on universally designed assessments. From 2003 to 2005, NCEO, the Center for Applied Special Technology (CAST) and the University of Oregon each conducted research on improving accessibility of assessments for all students, including students with disabilities. As a result of this research and federal policy[5], states have gradually become more amenable to the idea of universal design of assessments.

Currently, 26 States mention universal design in their requests for proposals from vendors, 19 states have universal design written into their test specifications, 30 states

[5] Assessment accessibility language is found in the No Child Left Behind Act of 2001 and ''universal design'' language is found in the Individuals with Disabilities Education Act of 2004.

included universal design reviews in their item reviews, and 19 states analyzed field test results for possible design issues (Thompson, Johnstone, Thurlow, & Altman, 2005). Figure 1 (below) demonstrates the numbers of states that now include some form of universal design in their item reviews.

In response to the growing need for specific information about universal design, NCEO conducted a Delphi Study in an effort to validate Thompson et al.'s (2002) Elements of Universally Designed Assessments and to create a list of Considerations for Universally Designed Assessments that states could use to review items for potential design issues (Thompson, Johnstone, Anderson & Miller, 2005).



Source : Thompson, Johnstone, Thurlow, and Altman, 2005.

Figure 2.1. Number of states that include universal design in test development.

Thompson, Johnstone, Anderson, and Miller's 2005 *Considerations for Universally Designed Assessments* built on Thompson et al.'s 2002 *Elements* to create a list of issues to consider when reviewing items and tests. Experts from the fields of learning disabilities, English Language Learners, reading, mathematics, technology, and assessment discussed (on-line) the issues surrounding each of NCEO's considerations. The final product was a validated list of considerations that could be used by states when addressing universal test design issues. Although this list is not exhaustive, it provides a starting point for states to determine if the products they purchased from vendors act in accordance with universal design principles. The considerations finalized by NCEO's expert review panel included:

Measure what it intends to measure

- Reflect the intended content standards (reviewers have information about the content being measured).
- Minimize knowledge and skills required beyond what is intended for measurement.

Respect the diversity of the assessment population

- Minimize knowledge and skills required beyond what is intended.
- Be sensitive to test taker characteristics and experiences (consider gender, age, ethnicity, socio-economic level, region, disability, and language).
- Avoid content that might unfairly advantage or disadvantage any student subgroup.

Have a clear format for text

- Standard typeface
- Twelve (12) point minimum size for all print, including captions, footnotes, and graphs (type size appropriate for age group), and adaptable font size for computers
- High contrast between color of text and background
- Sufficient blank space (leading) between lines of text
- Staggered right margins (no right justification)

Have clear visuals (when essential to item)

- Use visuals when needed to answer the question.
- Use visuals with clearly defined features (minimum use of gray scale and shading).
- Ensure sufficient contrast between colors.
- Do not rely on color alone to convey important information or distinctions.
- Label visuals.

Have concise and readable text

- Keep to commonly used words (except vocabulary being tested).
- Use vocabulary appropriate for grade level.
- Avoid use of unnecessary words.
- Avoid idioms unless idiomatic speech is being measured.
- Avoid or define technical terms and abbreviations if not related to the content being measured.
- Use sentence complexity that is appropriate for grade level.
- Clearly identify the question to be answered.

Allow changes to its format without changing its meaning or difficulty (including visual or memory load)

- Allows for the use of Braille or other tactile format
- Allows for signing to a student
- Allows for the use of oral presentation to a student
- Allows for the use of assistive technology
- Allows for translation into another language

Have an overall appearance that is clean and organized

- All visuals (e.g., images, pictures) and text provide information necessary to respond to the item.
- Information is organized in a manner consistent with an academic English framework, with a left-right, top-bottom flow.
- Booklets/materials can be handled easily with limited motor coordination.
- Response formats are easily matched to question.
- The test includes space for student to take notes (on the screen for CBT) or extra white space with paper-pencil

An annotated list of the research supporting each of the considerations is found in Appendix D.

Universal Design and the CAHSEE

Prior to the evaluation study conducted by NCEO, the State of California and its vendor, ETS, had already expressed interest in ensuring that the CAHSEE was universally designed. California State educational law, section 60061.8 requires that educational endeavors (including assessment) must be universally designed. In response, ETS' project manager has conducted trainings with item designers about universal design. All trainings were based on NCEO guidelines and other research related to accessibility of assessments.

Universal Design Methods and Procedures

The considerations discussed in the introductory remarks of this portion of the report were woven into an item review form that was used by teachers for reviewing the CAHSEE items. Separate trainings and item reviews took place on June 7 and 10, 2005. Both NCEO universal test design trainings were linked to HumRRO's alignment workshops.

Participants. All reviewers were teachers in California public schools who had knowledge of the California Academic Content Standards, diverse student populations, and CAHSEE requirements. Two training sessions were conducted, one on June 7th and the other on June 10th. Both trainings included general education language arts and mathematics teachers, special education teachers with a language arts or mathematics concentration, and one English Language Learner (ELL) teacher in each workshop. Recruiting and characteristics of the workshop participants are described previously. (See Tables 2.4 and 2.5.)

Procedures. The item reviews for June 7 and 10 followed identical procedures. First, NCEO research staff trained reviewers to notice Considerations for Universal Design. Staff conducted training using a PowerPoint presentation that was also

provided to reviewers as a handout. NCEO Universal Design staff provided information for reviewers and led discussion about universal design for approximately one hour.

Next, reviewers were split into two groups. One group was made up of English-language arts teachers (including special education teachers) and one group was made up of mathematics teachers (including special education teachers). In Sacramento, a counselor from the California School for the Blind moved between the two rooms in order to provide assistance on issues related to visual impairment. Likewise, in Los Angeles, a teacher from the California School for the Deaf supported both English and mathematics reviewers.

At the outset of the review, NCEO staff provided reviewers with the Considerations for Universal Design forms found in Appendix D. Using this form, reviewers examined actual CAHSEE items and marked items they thought raised issues. For example, one teacher might have found a bias issue with a particular item while another found an issue with language complexity on another item. Reviewers marked issues they found as well as items they thought had features that appeared universally designed. For every item that appeared problematic, reviewers commented on what issue was present, noted whether they requested further review from a disability or culture expert, or called for student research to be conducted on particular item features. By calling for a further expert or student review, reviewers were identifying an aspect of an item that might be suspect, while recognizing their lack of expertise in making a definitive judgment. Reviewers also completed the *Considerations* process and paperwork for the entire test. Consequently, issues that appeared often or that were found related to the entire test, such as test formatting or font size, were recorded separately rather than recording the issue for every item that demonstrated that particular issue. Reviewers spent about two hours on individual review of two tests made up 79 and 92 items, respectively.

At the end of the individual item review, reviewers engaged in discussion about items. As larger groups (English-language arts and mathematics), reviewers discussed each item's merits and shortcomings. In the end, reviewers agreed upon specific issues found in items. Likewise, the reviewers reached consensus on issues pertaining to the whole test. Consensus-making discussions were facilitated by NCEO research staff and lasted approximately two hours. Unlike in the consensus-making discussions about alignment, reviewers were not able to quantify issues related to items and the test because the issues they raised (if any) were qualitative issues.

Upon completion of subject-area reviews of tests, mathematics and language arts reviewers reconvened as a large group to discuss large group issues found across both tests (language arts and mathematics) and to evaluate the training and item review processes. This final discussion lasted approximately 20 minutes.

Universal Design Analysis and Results

This section of the report includes a summary of the item review results for mathematics and English-language arts. Several examples of results are included here to highlight reviewers' evaluations. These results represent the consensus ratings by the group after individual review of items. Item-specific information is not included here due to test security concerns. Specific comments are being provided to CDE and to the test developer.

Data were analyzed in the traditions of qualitative research, i.e., all data were examined and organized into large themes to produce meaningful information for readers. The following analyses took place in June and July of 2005:

1. Qualitative analysis of item-level data by subject area group (item-by-item analysis of consensus reports).
2. Quantitative analysis of whole-test issues by individuals (whole test issues raised by individuals).
3. Qualitative analysis of whole-test issues by subject area group (issues raised by whole groups regarding the whole test).

In contrast to the analyses on alignment, the results presented on universal test design are not separated by region. The alignment results required separate analyses due to the separate depth of knowledge consensus judgments on the standards. In addition, the results do not differentiate between core and field test items. Since students must take each portion of this test, it is more important to know whether students face issues with any of the items on the February 2005 CAHSEE test form.

Qualitative Results: Language Arts Item-by-Item Data as per Consensus by Language Arts Reviewers. Overall, reviewers found many ELA items to be well designed. They did, however, take issue with several items. According to our reviewers, only a few of these items had potentially *major* problems (i.e., significant enough issues to recommend that items be reexamined or removed from the test). According to reviewers, *major* problems were found in items that followed passages. In these items, reviewers were concerned that items required students to have experiences that many students of low socioeconomic status did not have. Specifically, reviewers were concerned that items might advantage students of middle to high socioeconomic status because of the types of experiences referred to in the items. Likewise, reviewers found that, in some items with major issues, references to visual or auditory stimuli may have introduced bias against students who are blind or deaf. Most items that reviewers flagged, however, were considered to have potentially *minor* problems (i.e., minor changes were recommended but the overall item was deemed acceptable).

If corrected, the issues brought up by reviewers might improve the CAHSEE's overall design, readability, and accessibility. Specifically, only 11 items and 1 passage presented potentially major problems for reviewers. Several items and passages, however, were deemed to have potentially minor issues related to design. Among the

categories that appeared to have the most minor problems for reviewers were diversity issues (11 items and 3 passages), readability issues (11 items, 1 passage, and 1 writing prompt), and formatting issues (32 items, 2 passages, and 1 writing prompt). Among these categories, reviewers most often questioned items' and passages' dependence on visual and auditory cues and reference to events that students of low socioeconomic status may not typically experience (diversity issues), the use of idiomatic or overly-complex language that was not imperative to the item's constructs (readability), and the lack of leading (white space) between lines of text (format issues).

In sum, 24 English-language arts items and no (0) English-language arts passages were considered to be problem-free. Reviewers found what might be minor problems with 43 items and 2 passages, and what might be at least one major issue for 12 items and 5 passages.

Qualitative Results: Mathematics Item-by-Item Data as per Consensus by Mathematics Reviewers. As a whole, mathematics reviewers reached consensus quickly. These reviewers found many items to be well designed overall, but they did note minor issues with these items. Mathematics reviewers labeled only a few items as having potentially *major* problems, such as (a) an item that was worded in a manner that gave the answer away, (b) an item with two answer choices that could be potentially correct, (c) an item that did not align with standards, (d) an item with misleading visuals, and (e) an item that could cause confusion when presented under read-aloud accommodation conditions. Among the *minor* issues that could be addressed to improve the CAHSEE's overall design are issues related to readability and accessibility. The categories that appeared to have the most minor problems for reviewers were formatting issues (34 items), readability issues (24 items), and standards/assessment-related issues (12 items). Among these categories, reviewers were most often concerned that the graphs were too small (and graph grid lines did not have sufficient contrast), that equations were not given a separate line in the item to prevent confusion of signs, that equations were frequently written in sentence form rather than in numeric form (for example, the words "is equivalent to" were used instead of an "=" sign), that answer choices were arranged in a potentially confusing way on graph items, and that some items did not assess the intended standard. Only 4 mathematics items presented what might be major problems for reviewers.

In sum, reviewers found no problems at all with 28 items. Reviewers found potentially minor problems with 61 items, and what might be at least one major issue for 4 items.

Quantitative Analysis of Whole-Test Issues by Individuals (Whole Test Issues Raised by Individuals). After evaluating the individual ELA and math items, reviewers were asked to identify what they saw as themes (both strengths and weakness) in each content area. These themes, or whole-test issues, draw attention to common patterns that could be addressed. First, reviewers in each content area were asked to make independent judgments of the whole-test issues. Results from individual reviewers are reported below.

Table 2.23 lists the types of themes that emerged for English language arts and Table 2.24 lists the themes that emerged for mathematics. In both tables, Column 1 lists the broad themes that emerged, while Column 2 identifies specific sub-issues within these themes. Column 3 indicates the number of math reviewers who identified the issue. It should be noted that, if a reviewer identified one or more issues pertaining to the consideration (i.e., "Respects Diversity,") then the reviewer would be counted once for the consideration and then once for each sub-issue. For this reason, the number of reviewers listed next to each sub-issues will not typically equal the overall number for reviewers who identified broad areas of concern.

Table 2.23. Individual, Whole Test Analysis of CAHSEE ELA Items (N = 14)

Consideration	Sub-issue	Sub-issue Total	Consideration Total
Respects Diversity			7
	Rural bias	4	
	Vision bias	4	
	Hearing bias	3	
	SES bias	2	
	Autism bias	1	
	EL bias	1	
Concise and readable text			2
	Low reading level	1	
	High reading level	1	
	Directions ignorable	1	
Clear format			5
	Response form color is confusing	1	
	Inconsistent numbering pattern (i.e., up/down & left/right)	2	
	Writing prompt issues (i.e., two sets of instructions, skipped entirely, more space needed for planning)	2	
	Increase leading	2	
Clear visuals			4
	Visuals are unclear/poor		3
	Distracting border		1
Amenable to accommodations			1
	Dictionaries should be allowed	1	
Other			4
	Essay points not clear	3	
	Items do not always measure standards	2	

Table 2.24. Individual, Whole Test Analysis of CAHSEE Math Items (N = 16)

Consideration	Sub-issue	Sub-issue Total	Consideration Total
Respects Diversity			2
	Vision bias	1	
	Hearing bias	1	
Concise and readable text			11
	Simplify language	5	
	Minimize language	3	
	Maintain consistency in units between stem and response options	2	
	One equation per line	2	
	Keep prepositions attached to objects	1	
	Write out equations, not put in sentence	1	
	Word question consistently	1	
	Avoid proper names	1	
	Reading level too high on some items	1	
Clear format			10
	Increase space between items on page	4	
	Change format: A B above, C D below	3	
	Increase space between numbers	2	
	Increase leading	2	
	Enlarge font (esp. for exponents)	2	
	Increase space around expressions	1	
Clear visuals			7
	Enlarge grid	4	
	Increase contrast of grid lines & bars	3	
	Larger print	1	
	Lighten grid lines	1	
	Darken lines	1	
Amenable to accommodations			0
Other			9
	Test too long for one day	8	
	Lacks item type diversity (Only Multiple Choice)	3	
	Give graph paper	3	
	Give punch out ruler	2	
	Include math courses on answer form	2	
	Shaded space between items on form	1	

In general, the majority of reviewers did not find whole-test issues with either the CAHSEE language arts or mathematics tests. The only exceptions included one consideration on the language-arts test (i.e., Respects Diversity) and two considerations on the math test (i.e., Concise and Readable Text, and Clear Format). Under Respects Diversity, reviewers reported that the language arts test included a disproportionate number of passages with content more familiar to students from rural areas, and a distinct lack of content relevant to students from urban areas. Additionally, reviewers expressed concern about the extent to which passage and subsequent items were biased against individuals with visual and hearing impairments.

On the mathematics test, Concise and Readable Text issues typically were related to the complexity of the vocabulary being used and item wordiness. Issues pertaining to Clear Format ranged from increasing workspace between items, changing the ordering of the items, and issues pertaining to visibility (e.g., increase line spacing, increase font).

Qualitative Analysis of Language Arts Whole-Test Issues by Subject Area Group (Issues Raised by Whole Groups Regarding the Whole Test). English-language arts reviewers also came to consensus on whole-test issues. These reviewers deemed the following features as potential problems with the CAHSEE test: (a) the test is too vested in multiple, long passages; (b) the directions for items and sections on the test are often poorly highlighted; (c) the passages appear biased against urban, low socioeconomic status students; (d) the visuals related to items were sometimes unclear and all visuals should have captions; (e) there was insufficient spacing between lines of text on items (leading); (f) passages contained many references that assumed experience with vision or hearing—such passages may be biased against students with visual or hearing disabilities; and (g) some of the language on the assessment was inconsistent with language used in state standards. Each of the language arts issues is presented below with a brief explanation.

The test is too vested in multiple, long passages. Reviewers felt as if the test depended too heavily on reading passages that were very long. Reviewers found that there was a lack of variety in the length of passages. Reviewers agreed that some long passages were necessary in order to assess the reading proficiency of students, but expressed concern that too many long passages caused unnecessary cognitive demands.

Directions were poorly highlighted. Reviewers pointed out several occasions where it was easy to ignore the directions provided because they were not visually highlighted. In these circumstances, reviewers were concerned that students may miss important information about an item or passage.

Visuals were unclear, need captions. Reviewers argued that it was sometimes difficult to distinguish what the visuals placed next to passages portrayed. In many cases, reviewers argued that pictures were not clear enough to aid in comprehension. In addition, none of the visuals contained captions. Such captions are important for both students with visual impairments and students who may not have familiarity with the content of visuals.

Insufficient line spacing between text in items. Although reviewers raised few complaints about the line spacing (leading) in passages, they expressed concern that text in items was insufficiently spaced (i.e., selected fonts resulted in letters spaced too close together). Reviewers commented that, on several items, text appeared jumbled because lines of text were too close. Although leading was sufficient on many items, it was inconsistent throughout the test.

Passages assumed hearing or vision experience. Many of the passages in the CAHSEE alluded to sounds and sights as a way of describing the context of the story. Reviewers were concerned that dependence on such sensory imagery may cause difficulties for students who have sensory impairments. In this case, reviewers were concerned that students with hearing or visual disabilities would have difficulty accessing items.

Language used in assessment was inconsistent with that in standards. Many of the items asked students to refer to certain portions of passages or demonstrate certain skills. The instructions provided, however, often used terms that were not found in state standards. Reviewers were concerned with this inconsistency.

Qualitative Analysis of Mathematics Whole-Test Issues by Subject Area Group (Issues Raised by Whole Groups Regarding the Whole Test). After completing individual rater whole-test item reviews, each group of content area reviewers came together to pinpoint the most important issues through a consensus discussion. The issues under discussion either recurred frequently in tests or were general design issues unrelated to particular items.

The mathematics reviewers deemed the following features as potential problems with the CAHSEE test: (a) the number of items per page (and related lack of space for students to take notes); (b) inconsistent leading and spacing between items; (c) the size and print contrast of graphs, (d) the presentation of equations, (e) the consistency of item stem and answers, and (f) the length of the test. Each of the mathematics issues is presented with an explanation below.

Items per page. Reviewers noted that items appeared cluttered on pages. The number of items per page was both visually challenging and gave students little room to take notes, calculate, etc. next to the items at the top of the page. Some reviewers suggested that the latter issue could be addressed by providing all students graph paper on which to work. Reviewers also suggested that when four items were presented per page, the items should be evenly spaced on the page to provide an equal amount of writing space for each one. As is, the top two items had little to no writing space and the bottom two items had sufficient (or more than enough) writing space.

Inconsistent line spacing and spacing between items. Reviewers noted that some items had sufficient line spacing. On others, however, they noted inconsistencies in the spacing between lines on items and in the spacing between letters on individual items throughout the test.

Size and print contrast of graphs. Reviewers noted that graphs were too small for some students to see. In addition, reviewers had issues with the lack of sharp contrast between the white and black grid lines on graphs. According to reviewers, these problems may cause students to misread data on graphs.

Presentation of equations. Reviewers noted that many equations were written as sentences. This, according to mathematics reviewers, was unnecessary. Rather, reviewers recommended that all equations be written in proper equation format. In addition, reviewers noted that when equations are written within a line of text they might be difficult to understand. Reviewers recommended that equations should be written on separate lines from all other text.

Length of the test. Finally, some reviewers were concerned that a test of 92 items was too demanding for a wide variety of students. These reviewers suggested that a shorter test could assess the same standards with fewer items.

Universal Design Conclusions and Recommendations

The purpose of the universal test design evaluation of the mathematics and English-language arts portions of the February 2005 CAHSEE test form was to determine whether these items are accessible to a wide range of students. Reviewers evaluated test items for format, organization, and content. The results from this investigation provide evidence in support of the efforts of the State of California to make the assessment system appropriate and accessible to all students required to take the CAHSEE.

The general conclusion is that most issues that reviewers found were deemed minor. In addition, many items were found to have no issues at all. For mathematics, the reviewers determined that many of the issues that arose centered on formatting (e.g., how equations were written; line spacing; and number of items per page). For ELA, the issues that arose dealt primarily with passages (e.g., passages appeared to favor the experience of middle-class, non-urban students without sensory impairments).

This study provides important information on how issues of universal test design can be assessed by content and population experts (i.e., teachers and other school personnel). The abundance of information found in the Results section provides a dataset that can be used for specific and targeted item-level test improvement.

Based on the findings in these investigations, we recommend that ETS review their current item development and review procedures against four goals to enhance the test design. These recommendations are based on data that emerged from the universal test design studies in June 2005 and universal design research over the past half decade.

1. **Ensure the CAHSEE has an inclusive test population.**
   Although several items and passages appeared to present biased testing conditions against particular populations of students, this should not suggest that particular populations should be excluded from the CAHSEE. Studies such as the HumRRO alignment study and NCEO Universal Design study may improve the test for all students, including students with disabilities, English learners, and other students who traditionally underperform on standardized assessments. Excluding these populations while improvements to the test are being made, however, could have serious implications for

instruction. Therefore, as the CAHSEE progresses, all populations should take the test on its first administration. Data from field tests and actual administrations of the CAHSEE can then be used to make future decisions (see Recommendation No. 2).

2. **Cross-analyze item-level data.**
   As noted above, reviewers found a variety of issues with individual items. Such information is a data source that should be seriously considered by stakeholders in the State of California. This information, however, represents only one data set. It is recommended that these data, combined with other data, be used to make decisions on items as assessments progress. For example, if reviewers determined that an item may be biased against a particular population of students and the field-test or live-test administration statistics also indicate bias, the item should be examined for change or omission from future tests. In addition to the data presented above and statistical analyses of items by population, the State of California may wish to conduct cognitive labs (think aloud studies) with particular populations of students for which reviewers found problematic items. Such studies will provide another data set from which to make decisions. By combining the data from this study, statistical evidence, and cognitive lab studies, the State of California will have a triangulated data set from which to make item-level decisions. In the current data set, reviewers have raised red flags on particular item-level issues that should be taken as cautions for future analysis.
3. **Changes to future CAHSEE tests should be made at the whole-test level first.**
   Although reviewers found a variety of issues with individual items, reviewers also found that several issues appeared often, and therefore were considered whole test issues. Because of the repeated nature of the issues that arose as whole test issues, these should be considered for immediate change and correction. Many of the issues raised by reviewers are matters of simple changes in format (e.g., the spacing of mathematics items on each page, the placing of equations on separate lines of text, and the amount of leading between lines of text in items) and should be relatively inexpensive to make. Issues surrounding passages, however, may require more substantial investment. According to reviewers, passages that appear to advantage middle- to upper-class suburban students should not be completely removed from the CAHSEE. Rather, reviewers recommended that passages be more balanced to reflect the schema and experience base of the wide variety of students taking the CAHSEE (specifically mentioned were urban students, students with sensory impairments, and students of low socioeconomic status).
4. **Revisit any issues related to alignment.**
   Reviewers found few items that did not align to standards. Those that did not, however, should be revisited and revised as necessary. A test that is not well aligned to standards is not universally designed, therefore item-level data from this study combined with HumRRO's study should provide the State of California with a succinct list of items to revise as necessary.

Overall, this study demonstrated that the State of California and its contractor, ETS, succeeded in creating a test without major design flaws. Those design issues that did arise should be addressed in prompt fashion, but a universal test design review of the CAHSEE, conducted by teachers, demonstrates that most items have only minor (if any) universal test design issues. The creation and improvement of any assessment is an ongoing and challenging process, but the willingness of the State of California and ETS to engage in alignment and universal test design studies early in the process (and hopefully as new versions are created) ensures that the CAHSEE will be in a constant state of improvement, will assess challenging standards, and will be accessible to all students.

Item Review Workshop: Summary Findings

The HumRRO item review workshops examined the quality and accessibility of the CAHSEE with California content experts. The studies assessed the February 2005 CAHSEE test form for alignment with the content standards and for appropriate format based on principles of universal test design.

The general conclusion from these investigations is positive. That is, the California educators involved in these workshops found the CAHSEE to be aligned with the content standards. Furthermore, these educators determined that the test is well constructed as a whole with mostly minor design issues.

Several specific recommendations follow from these findings. Concerning *alignment*, two recommendations are proposed:

1. Consider the definition and role of the mathematical reasoning standards. Assessment of these standards overlaps with the assessment of the more specific content standards and our reviewers had difficulties matching questions to these standards.
2. Consider creating a stronger match between the levels of cognitive complexity assessed by English-language arts items and those expected in the standards document for two standards: Reading—Word Analysis, Fluency, and Systematic Vocabulary Development and Reading Comprehension (Focus on Informational Materials).

Recommendations for *universal test design* include reviewing test development and test form design procedures for the following goals:

5. **Ensure the CAHSEE has an inclusive test population.**
6. **Cross-analyze item-level data.**
7. **Changes to future CAHSEE tests should be made at the whole-test level first.**
8. **Revisit any issues related to alignment.**

Chapter 3: Results from the 2004–2005 Administrations

Introduction

The legislation establishing the CAHSEE called for the first operational forms of the exam to be administered in spring 2001 to 9th graders in the Class of 2004. At the first administration 9th graders could volunteer, but were not required, to take both portions of the exam. Students who did not pass the exam in that administration were required to take the exam as 10th graders in spring 2002. Preliminary results from the CAHSEE spring 2001 and 2002 administrations were reported in the Year 2 and Year 3 evaluation reports (Wise et al., June 2001; Wise et al., June 2002b). Results from the 2001 administration were reported more fully in the first of the biennial evaluation reports to the Legislature, the Governor, the Board, and the CDE (Wise et al., Jan. 2002a).

The CAHSEE was administered six more times from July 2002 through May 2003 to students in the Class of 2004 who had not yet passed one or both parts. In addition, students from the Class of 2005 were required to take the CAHSEE for the first time as 10th graders in March or May of 2003. Analyses of results from these administrations were reported in the Year 4 evaluation report (Wise, et al., Sep. 2003) and in the second biennial evaluation report (Wise et al., 2004).

Subsequent to the 2003 administrations, the requirement to pass the CAHSEE was deferred to the Class of 2006. In 2004, the CAHSEE was modified slightly and restarted with administration to all 10th graders in the Class of 2006. Results from the 2004 administrations were reported in the Year 5 evaluation report (Wise, et al., Sep. 2004). All of these reports are available on the CDE Web site at http://www.cde.ca.gov/ta/tg/hs/evaluations.asp.

The 2004–05 administrations analyzed for this report included both 10th graders in the Class of 2007 taking the CAHSEE for the first time and 11th graders in the Class of 2006 who had not passed the CAHSEE as 10th graders. The 11th graders took the CAHSEE one or more times in September 2004, November 2004, February 2005, March 2005, and May 2005. The 10th graders participated in the February, March or May 2005 administrations. In addition, a small number of adult education students took the CAHSEE during the 2004–05 school year.

Analyses of results from the 2004–05 CAHSEE administrations are organized around two main questions:

1. How did this year's results for 10th graders in the Class of 2007 compare to results for the Classes of 2005 and 2006 when those students took the CAHSEE for the first time as 10th graders in 2003 and 2004 respectively?
2. How has performance improved for 11th graders in the Class of 2006 who had not yet passed the CAHSEE and what can we expect for those who have not yet passed by the end of 11th grade?

Results for adult education students are reported briefly, but are not the primary policy focus of these analyses.

As in prior years, some difficulties were encountered in these analyses. Students taking the CAHSEE for the first time were sometimes unable to take both parts in the same administration and so have separate, albeit incomplete, records from two different administrations. In addition, a few students appear to have used two different answer sheets in the same administration, again generating separate incomplete records. CAHSEE test result records do not yet contain a constant and unambiguous student identifier. Records from each school had to be matched by name and birth date and, in some cases, by district-level student identifiers. Inconsistencies or omissions in coding these fields complicated the process of linking separate records for the same student. Any failure in linking such records led to an overcount of the number of students tested.

For the 11th graders, linking problems were even more complicated. First, they may have taken each portion of the CAHSEE two, or in some cases, three times during the 2004–05 school year. Second, many districts appeared to have changed student identifiers between the 2003–04 and 2004–05 school years. In addition, many students may have changed schools between years while others may still be considered 10th graders and thus grouped with the first-time test takers. Accurate linking for the 11th graders is essential to answering questions such as “How many students in the Class of 2006 who did not pass last year are still taking the CAHSEE?” and “Where did students who appear to have taken the CAHSEE for the first time as 11th graders come from?”

Who Tested?

Tables 3.1 and 3.2 show the number of test records from each of the five CAHSEE administrations during the 2004–05 school year. Separate counts are shown by grade and for students taking the regular administration of the test, those taking it with accommodations, and those taking it with modifications. Results are shown for 4,526 administrations to adult education students, 42.4 percent of whom passed the ELA test and 36.5 percent of whom passed the mathematics test. Adult education students were eliminated from further analyses, which focused on the 10th and 11th graders.

In all, there were 468,443 administrations of the ELA test and 481,000 administrations of the mathematics test to 10th graders. There were 240,254 administrations of the CAHSEE to 11th graders. Not surprisingly, passing rates were much lower for the 11th graders, nearly all of whom had low scores on their initial attempt(s) to pass the CAHSEE as 10th graders. For the ELA test, a total of 8,919 administrations to 10th graders and 9,997 administrations to 11th graders included accommodations. An additional 891 administrations to 10th graders and 1,497 administrations to 11th graders involved modifications that invalidated the scores. In most cases this involved oral presentation of reading test questions. For the mathematics test, there were 6,249 accommodated test administrations for 10th graders and 6,820 for 11th graders. An additional 5,130 administrations to 10th graders and 8,115 administrations to 11th graders involved modifications, most commonly the use of

calculators. Passing rates for administrations involving accommodations or modifications were generally quite low.

Table 3.1. Number of Students Taking the CAHSEE ELA Test in 2004–05 by Administration Type and Date

Administration		Administration Date:					
Type	Statistic	Sep. 04	Nov. 04	Feb. 05	Mar. 05	May 05	Total
10th Grade Students							
Regular	N	NA	NA	134,176	306,800	12,254	453,230
	% Pass	NA	NA	75.9%	78.7%	50.0%	77.1%
Accommodation	N	NA	NA	2,859	5,762	298	8,919
	% Pass	NA	NA	27.6%	29.4%	22.5%	28.6%
Modification	N	NA	NA	359	563	9	931
	% > 349	NA	NA	23.7%	24.5%	44.4%	24.4%
Not Tested*	N	NA	NA	4,328	8,875	4,717	17,920
TOTAL	N	NA	NA	141,722	322,000	17,278	481,000
	% Pass	NA	NA	72.5%	75.6%	35.9%	73.2%
11th Grade Students							
Regular	N	10,299	81,365	12,949	40,843	20,941	166,397
	% Pass	32.6%	39.3%	43.3%	32.2%	29.5%	36.2%
Accommodation	N	444	4,575	800	2,775	1,403	9,997
	% Pass	11.3%	17.3%	20.0%	17.1%	18.2%	17.3%
Modification	N	23	835	55	452	132	1,497
	% > 349	34.8%	19.0%	32.7%	16.4%	17.4%	18.8%
Not Tested*	N	3,863	29,590	4,402	15,928	8,580	62,363
TOTAL	N	14,629	116,365	18,206	59,998	31,056	240,254
	% Pass	23.3%	28.3%	31.8%	22.8%	20.8%	25.9%
Adult Education Students							
Regular	N	48	1,209	440	1,314	623	3,634
	% Pass	37.5%	55.0%	55.7%	49.2%	48.6%	51.7%
Accommodation	N	0	0	0	2	4	6
	% Pass	0	0	0	0.0%	0.0%	0.0%
Modification	N	0	0	0	0	0	0
	% > 349	0	0	0	0	0	0
Not Tested*	N	7	223	89	312	155	786
TOTAL	N	55	1,432	529	1,628	782	4,426
	% Pass	32.7%	46.4%	46.3%	39.7%	38.8%	42.4%

*Note. Students who took only the mathematics test are shows as “Not Tested” in this table.

Table 3.2. Number of Students Taking the CAHSEE Mathematics Test in 2004–05 by Administration Type and Date

Administration		Administration Date:					
Type	Statistic	Sep. 04	Nov. 04	Feb. 05	Mar. 05	May 05	Total
10th Grade Students							
Regular	N	NA	NA	133,806	305,870	12,306	451,982
	% Pass	NA	NA	71.4%	77.2%	46.1%	74.6%
Accommodation	N	NA	NA	1,814	4,268	167	6,249
	% Pass	NA	NA	22.2%	27.3%	21.0%	25.7%
Modification	N	NA	NA	1,876	3,105	149	5,130
	% > 349	NA	NA	23.1%	22.7%	14.8%	22.6%
Not Tested*	N	NA	NA	4,226	8,757	4,656	17,639
TOTAL	N	NA	NA	141,722	322,000	17,278	481,000
	% Pass	NA	NA	68.0%	73.9%	33.1%	70.7%
11th Grade Students							
Regular	N	11,131	84,302	12,937	40,907	20,745	170,022
	% Pass	37.3%	40.0%	35.1%	29.7%	26.0%	35.3%
Accommodation	N	343	3,190	601	1,716	970	6,820
	% Pass	10.5%	14.8%	13.5%	15.0%	11.6%	14.0%
Modification	N	225	3,738	557	2,360	1,235	8,115
	% > 349	13.8%	18.6%	18.1%	16.4%	15.7%	17.4%
Not Tested*	N	2,930	25,135	4,111	15,015	8,106	55,297
TOTAL	N	14,629	116,365	18,206	59,998	31,056	240,254
	% Pass	28.9%	30.0%	26.0%	21.3%	18.4%	26.0%
Adult Education Students							
Regular	N	51	1,200	414	1,324	644	3,633
	% Pass	35.3%	50.4%	38.7%	44.1%	38.8%	44.5%
Accommodation	N	0	0	0	3	4	7
	% Pass	0	0	0	0.0%	0.0%	0.0%
Modification	N	0	0	0	0	0	0
	% > 349	0	0	0	0	0	0
Not Tested*	N	4	232	115	301	134	786
TOTAL	N	55	1,432	529	1,628	782	4,426
	% Pass	32.7%	42.2%	30.2%	35.9%	32.0%	36.5%

*Note. Students who took only the ELA test are shows as "Not Tested" in this table.

As noted above, many students participated in more than one administration so the number of students tested was fewer than the number of answer documents processed. Attempts to count individual students, rather than just answer documents, are described in the next section.

Analysis of the Test Score Data

A number of potential issues with the data on test scores were addressed before we analyzed the results. First, we took steps to match records for students who participated in more than one testing session. We wanted to remove duplication in counts of the total number of students tested and to be able to estimate the number of students who passed both parts of the CAHSEE. Second, we conducted analyses of the accuracy with which scores on different forms were converted to the common reporting scale (equated) and looked at the consistency with which the essays were scored.

Matching Student Records from Different Administrations

In response to data analysis requirements in the 2001 federal No Child Left Behind (NCLB) Act, the state legislature passed SB 1453 requiring the establishment of student identifiers for all California public or charter school students. When the statewide student identifiers called for by SB 1453 are fully implemented by the California School Information Services (CSIS), matching records for students participating in different test administrations will be “relatively” easy (CSIS, 2004). Unfortunately CSIS student identifiers were not widely used with the 2004–05 CAHSEE administrations. We thus had to match records on school identifiers and student names and birth dates. In some cases, we were able to match using identifiers supplied by school districts on a voluntary basis. As usual, there were numerous cases in which student names and birth dates were not coded consistently across different administrations. In addition, the student identifiers supplied by districts were sometimes coded incorrectly or inconsistently.

We matched records in two phases. In the first phase, we matched records for 10th graders within and across the February, March, and May administrations and matched records for 11th graders within and across all five administrations. In the second phase, we matched the merged records for 11th graders from the 2004–05 administrations with records for 10th graders in the 2004 administrations who had not passed both parts.

Table 3.3 shows the number of matching records found in the first matching phase for 10th graders and 11th graders. Just over 10,000 10th grade students had records from two different administrations. In most cases, these students were making up one of the tests that they missed during the original administration. For 11th graders, 72,632 students had records from more than one administration. As intended, these students were taking advantage of being allowed to test twice during the 11th grade.

Table 3.4 shows results from matching 2005 records for 11th graders to records for 10th graders from 2004. Matches were found for 121,331 students who had not completed the CAHSEE requirement in the 10th grade. One striking finding was that roughly 14,000 students had only taken one of the CAHSEE tests during the 10th grade. Some of these students may have had multiple answer sheets in one administration or tested in different administrations and we failed to match their separate 2004 records. To check this, we printed out separate lists of students missing the ELA test and

students missing the mathematics test. The lists were organized by school and included all of the possible identifiers. Careful inspection of these lists indicated that these really were different students. Only one or two percent of the unmatched records appeared to be possible matches. Some of the students who were absent or otherwise unable to participate in one of the two testing sessions may have left school and were eliminating the possibility of making up the missing session in a subsequent administration. Nonetheless, it might be useful for the testing contractor to flag instances in the February and March administrations where students are missing one of the two tests. This information could assist schools in scheduling needed makeup sessions during the May administration.

Table 3.3. Number of Records Matched Across 2004–05 Administrations

Match Category	Administration Date:					
	Sep. 04	Nov. 04	Feb. 05	Mar. 05	May 05	Total
	10th Graders					
Original number of records	0	0	141,722	322,000	17,278	481,000
Matches within administration	0	0	17	58	4	79
Matches to earlier administration	0	0	0	2,775	7,255	10,030
Unique records remaining	0	0	141,705	319,167	10,019	470,891
	11th Graders					
Original number of records	14,629	116,365	18,206	59,998	31,056	240,254
Matches within administration	2	69	5	21	6	103
Matches to earlier administration	0	124	5,045	44,613	22,850	72,632
Unique records remaining	14,627	116,172	13,156	15,364	8,200	167,519

A second major finding shown in Table 3.4 was that no matching records were found for over 25 percent (44,978) of the students who had not completed the CAHSEE requirement during the 10th grade. A slightly larger number (46,188)of 11th grade students who tested in 2005 could not be matched to 10th grade records from 2004. Among the reasons we could not match all of the 11th grade records were that: (a) some students transferred in from other states; (b) others may have been 11th graders in 2004 who failed to earn enough credits to be classified as 12th graders in 2005; and (c) some of these students had not tested as 10th graders because they were new English learners or had been otherwise unable to test or had simply been absent on the testing dates.

Table 3.4. Matched and Unmatched Students from the 2004 and 2005 Administrations

Category	ELA	Mathematics
11th Grade Students Matched to 2004 Test-Takers		
Total Students Matched	121,331	121,331
Number Who Passed in 2004	29,784	26,713
Number Who Passed in 2005	38,297	38,437
Number Who Did Not Pass in 2005	50,808	53,304
Number Who Did Not Test in 2005	3,442	2,877
11th Grade Students Not Matched to 2004 Test-Takers		
Total Students Not Matched	46,188	46,188
Number Who Passed in 2005	22,236	22,515
Number Who Did Not Pass in 2005	17,824	19,708
Number Who Did Not Test in 2005	6,182	3,965
2004 Test-Takers Not Passing One or Both Parts and Not Matched to 2004–05 11th Graders		
Total Students Not Matched	44,978	44,978
Number Who Passed in 2004	10,779	8,487
Number Who Did Not Pass in 2004	26,969	29,569
Number Who Did Not Test in 2004	7,230	6,922

Table 3.5 shows provides details of the “fuzzy matching” process. In this process, cases to be matched are sorted into categories based on partial matching information (e.g., the first three letters of last name). Within each category, the best possible matches are found using all available information to evaluate the likelihood that the records are for the same student. Matching continues until the match criteria fall below a minimum value. The remaining cases in the category are considered to be still unmatched.

Over half of the students were matched on the first try. Another 15 percent were found in different schools in 2005. Over 25 percent could not be matched at all. Without better student identifiers, it is difficult to determine the extent to which these rates reflect general patterns of mobility and retention.

Table 3.5. Matching Students Who Had Not Passed in 2004

Category	Number
Number of Students Not Passing Both Parts in 2004	166,308
1. Matches on School and Partial Name	94,310
2. Matches on School and Birth Date	1,050
3. Match on Partial Name and Birth Date (Different Schools)	25,766
4. Matches on Partial Name with Reversals	175
Total Students Still Not Matched	44,978

Computing Passing Rates

A key issue in computing and reporting passing rates for the CAHSEE is what to use as the denominator. The two main choices are the number of students who took each test and the number of students subject to the CAHSEE requirement. In this report, as in our prior reports, we have opted for the latter, reporting the proportion of all students in the target populations who have passed. However, the number of students in the target populations fluctuates with daily enrollment changes. Table 3.6 compares fall enrollment counts (reported by DataQuest), enrollment counts from the STAR testing that occurred closer in time to the CAHSEE testing dates, and record counts from the CAHSEE. The CAHSEE is now also being used for high school accountability under NCLB requirements. Essentially all students must be tested to meet NCLB participation requirements, so the CAHSEE counts appear to be reasonably complete. Total CAHSEE record counts were used in computing passing rates for this report. STAR reports include the number of students tested in different demographic groups, but do not include separate enrollment counts for these groups. The CAHSEE data provide for consistent counts for each demographic group of interest. Comparative passing rates from the 2003 CAHSEE administrations for the Class of 2005 were recomputed using the same approach. Note that the CAHSEE record counts used here were based on matching records across administrations to avoid counting students more than once. This step requires access to student identifiers. The counts reported here thus provide new information not available to the CDE, since student identifiers are not included on CDE files.

Table 3.6. Tenth Grade Enrollment Estimates from DataQuest, STAR, and CAHSEE

Source	2002–03 10th Graders	2003–04 10th Graders	2004–05 10th Graders
Fall Enrollment (Data Quest)	471,648	490,214	497,197
STAR Reported Enrollment	457,181	475,181	481,983
STAR Students Tested	427,454	452,217	462,693
CAHSEE Student Counts*	425,066	459,199	470,891
CAHSEE Counts as Percent of Fall Enrollment	90.1%	93.7%	94.7%
CAHSEE Students Taking the ELA Test	402,594	450,479	461,957
CAHSEE Students Taking the Math Test	414,903	451,138	462,158
CAHSEE Students Taking Both Tests	392,431	442,418	453,224
Percent of Students Taking Both Tests	92.3%	96.3%	96.2%

*Note. CAHSEE record counts, after merges to remove duplication, were used in computing passing rates.

Equating the 2005 Test Forms

We examined the test forms used in each of the three 2005 administrations. ETS conducted equating analyses to convert number-correct scores from each form to scale scores that were as comparable as possible. For the February 2005 test forms, we conducted our own independent analyses. We examined item difficulties, item-total correlations, and differential item functioning indices (the extent to which group differences in passing rates for a given question are not consistent with group differences on the other questions). Our results were in close agreement with the operational analyses conducted by ETS.

We also used commercially available software (WINSTEPS) to create raw-to-scale score translations that were equated with the translations used for past forms. ETS uses a proprietary version of the PARSCALE program to conduct these analyses. Notwithstanding differences in the software used, HumRRO and ETS results matched closely. The minimum raw scores for passing and for NCLB proficiency were identical in the two analyses. Tables 3.7 and 3.8 below show the raw-to-scale score conversions for each of the ELA and mathematics test forms used in the 2004–05 administrations.

Table 3.7. Raw-to-Scale Score Conversions for the 2004–05 ELA Tests

Raw Score	Scale Score					Raw Score	Scale Score				
	Sep. 04	Nov. 04	Feb. 05	Mar. 05	May 05		Sep. 04	Nov. 04	Feb. 05	Mar. 05	May 05
0-15	275	275	275	275	275	51	346	347	347	345	340
16	275	278	278	277	275	52	347	349	349	347	342
17	277	281	281	279	275	53	349	**350**	**351**	348	344
18	280	284	283	282	278	54	**351**	352	353	**350**	346
19	282	286	286	284	280	55	353	354	355	352	348
20	285	289	288	287	282	56	355	356	357	354	**350**
21	287	291	291	289	284	57	357	358	359	356	352
22	289	293	293	291	286	58	359	360	361	359	354
23	291	295	295	293	288	59	361	362	363	361	356
24	293	297	297	295	290	60	363	364	365	363	358
25	296	300	299	297	292	61	365	366	367	365	361
26	298	302	302	300	294	62	367	368	369	367	363
27	300	304	304	301	296	63	369	370	372	370	365
28	302	306	306	303	298	64	371	373	374	372	367
29	304	308	308	305	300	65	373	375	376	374	370
30	306	309	309	307	302	66	375	377	379	377	372
31	308	311	311	309	303	67	377	379	**381**	379	374
32	310	313	313	311	305	68	379	**382**	384	**382**	377
33	312	315	315	313	307	69	**382**	384	386	385	379
34	314	317	317	314	309	70	384	387	389	388	**382**
35	316	319	319	316	311	71	387	390	392	390	385
36	318	320	320	318	312	72	389	392	395	393	388
37	320	322	322	320	314	73	392	395	398	397	391
38	321	324	324	321	316	74	395	398	401	400	394
39	323	326	326	323	318	75	398	401	404	403	397
40	325	327	328	325	320	76	401	404	408	407	401
41	327	329	329	327	322	77	404	408	412	411	405
42	329	331	331	328	323	78	407	411	416	415	409
43	331	333	333	330	325	79	411	415	420	420	413
44	333	334	335	332	327	80	414	419	424	424	418
45	334	336	336	334	329	81	418	423	429	430	423
46	336	338	338	335	331	82	423	428	434	435	429
47	338	340	340	337	333	83	428	433	440	442	435
48	340	341	342	339	335	84	433	439	447	449	442
49	342	343	344	341	336	85	440	446	450	450	450
50	344	345	345	343	338	86	447	450	450	450	450
						87-90	450	450	450	450	450

Note. Bolded numbers reflect minimum scores for passing the diploma requirement (the first bolded number in each column) and for proficiency as used in school accountability (the second bolded number); underlined scale scores indicate expected scores from guessing alone (chance).

Table 3.8. Raw-to-Scale Score Conversions for the 2004–05 Mathematics Tests

Raw Score	Scale Score					Raw Score	Scale Score				
	Sep. 04	Nov. 04	Feb. 05	Mar. 05	May 05		Sep. 04	Nov. 04	Feb. 05	Mar. 05	May 05
0-9	275	275	275	275	275	41	346	346	348	348	346
10	275	275	278	275	276	42	348	348	349	**350**	347
11	277	278	282	279	280	43	349	**350**	**351**	352	349
12	281	282	285	282	283	44	**351**	352	353	353	**351**
13	284	285	288	286	286	45	353	354	355	355	353
14	287	289	291	289	290	46	355	355	357	357	354
15	290	292	294	292	292	47	357	357	358	359	356
16	293	294	297	295	295	48	359	359	360	361	358
17	296	297	300	298	298	49	361	361	362	363	360
18	298	300	302	301	300	50	363	363	364	365	362
19	301	302	305	303	303	51	365	365	366	367	364
20	303	305	307	306	305	52	367	367	368	369	366
21	306	307	309	308	307	53	369	369	370	371	367
22	308	309	312	310	310	54	371	371	372	373	369
23	310	312	314	313	312	55	373	373	374	375	371
24	313	314	316	315	314	56	375	375	376	377	374
25	315	316	318	317	316	57	377	377	378	379	376
26	317	318	320	319	318	58	379	379	**380**	**381**	378
27	319	320	322	321	320	59	**382**	**381**	382	384	**380**
28	321	322	324	323	322	60	384	383	384	386	382
29	323	324	326	325	324	61	386	386	387	388	385
30	325	326	328	327	326	62	389	388	389	391	387
31	327	328	330	329	328	63	391	391	392	394	389
32	329	330	331	331	330	64	394	393	394	396	392
33	331	332	333	333	331	65	397	396	397	399	395
34	333	334	335	335	333	66	400	399	400	402	398
35	334	335	337	337	335	67	403	402	403	405	401
36	336	337	339	339	337	68	406	405	406	408	404
37	338	339	341	340	339	69	410	409	410	412	407
38	340	341	342	342	340	70	414	412	413	416	411
39	342	343	344	344	342	71	418	416	418	420	415
40	344	344	346	346	344	72	422	421	422	424	419
						73	427	426	427	429	424
						74	433	431	433	435	430
						75	439	438	439	442	436
						76	447	446	447	450	444
						77-80	450	450	450	450	450

Note. Bolded numbers reflect minimum scores for passing the diploma requirement (the first bolded number in each column) and for proficiency as used in school accountability (the second bolded number); underlined scale scores indicate expected scores from guessing alone (chance).

Scoring Consistency

In past reports, we have examined the accuracy of the scores generated from different parallel forms of the exam. During the Year 5 evaluation, we monitored ETS's analysis of item-level statistics from each administration and found no significant changes from the results for prior forms. More complete information on test accuracy may be found in technical documentation provided by ETS.

We paid particular attention to consistency in the scoring of student essays. In previous years, each student taking the ELA test was required to write two essays, the first involving analysis of an associated text and the second in response to a freestanding prompt that did not involve text processing. Beginning in 2004, the ELA test was shortened and students were required to write only one essay. The type of essay prompt varied across administrations. In the September 2004 and May 2005 administrations, students responded to a stand-alone prompt, while in the November, February, and March administrations, the essay question was associated with a text that also had multiple-choice reading comprehension questions.

As in prior years, each essay was graded by at least two different raters following a four-point rubric that indicated the essay response characteristics required for each score level. Four was the highest score; a score of zero was assigned to responses that were off-topic, illegible, or left blank. Since the scoring rubrics vary from question to question, we monitored the level of agreement between independent raters for each question used with each administration. Table 3.9 shows, for each of the 2004–05 test forms and for test forms from prior years: (a) how often (what percent of the time) there was exact agreement, (b) how often there was a difference of just one score point, and (c) how often there was a difference of more than one score point. Whenever there was an initial difference of more than one score point, the essay was read again by a third, more experienced reader and the scores assigned by one or both of the initial readers were not used. Thus, all operational scores resulted from two raters who agreed to within a single score point.

This year, we analyzed scoring consistency separately for 10th and 11th grade students. While the questions and the scoring process were identical for these two groups, the distribution of papers was not. Tenth grade students generated many more essays rated as 3 or 4 in comparison to 11th grade students. Since the 2004 administration included only 10th grade students, separate analyses of results for 10th grade students in 2005 provided a better comparison.

The results indicate that scoring consistency for the 2005 administrations was comparable to or slightly greater than scoring consistency in prior years. There will always be some papers very near the score point boundaries, so we would not expect perfect agreement. The number of serious disagreements in scoring, signified by differences of more than one score point, was generally less than one percent.

Table 3.9. Rater Scoring Consistency for Student Essays

Administration	Percent of Essays at Each Level of Agreement					
	1st Essay (Associated Text)			2nd Essay (Stand-alone Prompt)		
	Exact	+/- 1	+/- > 1	Exact	+/- 1	+/- > 1
July 2002	65.2	33.0	1.8	66.2	32.2	1.6
Sep. 2002	68.2	30.7	1.0	69.0	30.0	0.9
Nov. 2002	71.3	27.9	0.8	68.4	30.8	0.8
Jan. 2003	70.6	28.2	1.1	70.3	28.9	0.8
Mar. 2003	64.5	33.6	1.9	62.2	36.2	1.6
May 2003	70.1	29.2	0.7	69.4	29.9	0.7
Feb. 2004				66.3	33.0	0.8
Mar. 2004	62.0	36.6	1.4			
May 2004				68.5	31.5	0.0
Sep. 2004, 11th Grade				71.6	28.0	0.3
Nov. 2004, 11th Grade	67.1	31.6	1.2			
Feb. 2005, 10th Grade	65.8	33.3	0.9			
Feb 2005, 11th Grade	70.7	28.6	0.7			
Mar. 2005, 10th Grade	66.6	32.5	0.9			
Mar. 2005, 11th Grade	73.5	26.0	0.6			
May 2005, 10th Grade				74.0	25.7	0.2
May 2005, 11th Grade				75.4	24.4	0.2
2004–05, 10th Grade	66.5	32.6	0.9			
2004–05 11th Grade	70.3	28.8	0.9			

Tables 3.10 and 3.11 provide more detailed information on scores assigned by each of the two independent raters for 10th graders and for 11th graders across all of the 2005 administrations. There was near perfect agreement on the essays judged to be unscorable (score level 0). There was generally good agreement on essays assigned to score levels 1 through 3. If the first reader assigned a score at one of these levels, the second reader was most likely to assign the same score. For 11th graders, most of whom had taken but not passed the ELA test previously, very few essays were assigned a score of 4. Agreement at this level was correspondingly less. If the first reader assigned a score of 4, the second reader was most likely to assign a score of 3.

Table 3.10. Percent of 10th Grade Essays Assigned Each Score Level by Each Rater in 2005

First Rater	Second Rater				
	0	1	2	3	4
0	**3.35**	0.00	0.00	0.00	0.00
1	0.00	**7.18**	3.83	0.17	0.00
2	0.00	3.78	**34.33**	10.04	0.27
3	0.00	0.16	10.18	**20.19**	2.34
4	0.00	0.00	0.28	2.40	**1.48**
Average Score from First Rater					2.3
Average Score from Second Rater					2.3

Note. Bolded numbers indicate perfect agreement between the two raters.

Table 3.11. Percent of 11th Grade Essays Assigned Each Score Level by Each Rater in the 2004–05 School Year

	Second Rater				
First Rater	0	1	2	3	4
0	**7.45**	0.00	0.00	0.00	0.00
1	0.00	**17.18**	7.85	0.27	0.01
2	0.00	7.82	**38.78**	5.98	0.15
3	0.00	0.25	5.87	**6.38**	0.68
4	0.00	0.01	0.16	0.65	**0.50**
Average Score from First Rater					1.8
Average Score from Second Rater					1.8

Note. Bolded numbers indicate perfect agreement between the two raters.

Who Passed?

Initial Passing Rates for 10th Graders

A major charge for the independent evaluation was to analyze and report performance on the CAHSEE for all students and for specific demographic groups, including economically disadvantaged students, English learners (EL), and students with disabilities (characterized as “exceptional needs students” in the legislation). Tables 3.12 and 3.13 show the ELA and mathematics passing rates for each of these demographic groups as well as for gender and ethnic groups. The passing rates shown in these tables were calculated by dividing the total number of 10th grade students who passed each subject in 2005 by the number of students participating in at least one CAHSEE testing session. Prior to 2004, we used fall enrollment data for the denominator, which generally overstates the number of students still in school at the time of CAHSEE testing. Now, because of NCLB requirements, records were supposed to be entered for all students to allow calculation of participation rates. Thus enrollment counts generated from the CAHSEE data were believed to be an accurate reflection of the number of students in each demographic category. As in last year’s report, the passing rates from the 2003 administration were adjusted for the changes in test difficulty introduced in 2004.

Tables 3.12 and 3.13 show ELA and mathematics passing rates respectively for 10th grade students in the Class of 2007. Comparisons to 10th grade passing rates for the Classes of 2005 and 2006 are also provided.

Table 3.12. Initial Passing Rates by Demographic Group—English-Language Arts

Group	Students Tested			Percent Passing		
	Class of 2005	Class of 2006	Class of 2007	Class of 2005*	Class of 2006	Class of 2007
All Students	425,066	459,138	470,891	71.6%	72.9%	74.8%
Females	207,619	224,766	230,425	76.2%	77.4%	79.5%
Males	216,708	233,964	239,214	67.2%	68.7%	70.2%
1. Native American	3,717	4,227	4,270	70.1%	70.9%	70.8%
2. Asian	38,635	42,588	42,699	82.0%	84.1%	85.2%
3. Pacific Islander	2,832	3,107	3,299	69.9%	69.3%	73.5%
4. Filipino	12,475	13,349	13,592	85.3%	86.3%	87.3%
5. Hispanic	169,704	188,494	194,211	57.8%	59.8%	63.2%
6. African American	34,619	37,287	39,501	59.9%	60.1%	62.1%
7. White (not Hispanic)	157,498	165,613	164,927	85.9%	87.0%	88.0%
Economically Disadvantaged (Original Definition)	141,401	162,530	175,446	55.9%	58.4%	62.0%
Economically Disadvantaged (New Definition)	167,869	186,411	197,678	55.7%	58.1%	61.8%
English Learners	72,038	83,728	84,358	34.9%	38.0%	41.3%
Reclassified Fluent English	45,320	49,067	53,323	80.4%	85.2%	87.9%
Special Education Students	36,448	42,516	42,677	32.2%	28.8%	31.5%

*Note. Passing rates for the Class of 2005 were adjusted to reflect the new scale. The numbers shown here are estimates of the number of students in each category who would have passed had they taken the revised form of the CAHSEE that was first used with the Class of 2006.

Table 3.13. Initial Passing Rates by Demographic Group—Mathematics

Group	Students Tested			Percent Passing		
	Class of 2005	Class of 2006	Class of 2007	Class of 2005*	Class of 2006	Class of 2007
All Students	425,066	459,138	470,891	66.1%	71.8%	72.1%
Females	207,619	224,766	230,425	66.6%	72.8%	73.1%
Males	216,708	233,964	239,214	65.6%	70.8%	71.3%
1. Native American	3,717	4,227	4,270	62.5%	66.3%	66.3%
2. Asian	38,635	42,588	42,699	86.9%	90.5%	90.9%
3. Pacific Islander	2,832	3,107	3,299	63.3%	69.5%	70.4%
4. Filipino	12,475	13,349	13,592	80.8%	86.0%	85.8%
5. Hispanic	169,704	188,494	194,211	51.1%	59.2%	60.2%
6. African American	34,619	37,287	39,105	44.6%	51.9%	52.5%
7. White (not Hispanic)	157,498	165,613	164,927	81.3%	85.0%	85.4%
Economically Disadvantaged (Original Definition)	141,401	162,530	175,446	51.4%	59.0%	60.2%
Economically Disadvantaged (New Definition)	167,869	186,411	197,678	50.9%	58.6%	59.9
English Learners	72,038	83,728	84,358	39.1%	47.6%	47.0%
Reclassified Fluent English	45,320	49,067	53,323	72.6%	81.9%	83.4%
Special Education Students	36,448	42,516	42,677	26.6%	27.8%	28.6%

*Note. Passing rates for the Class of 2005 were adjusted to reflect the new scale. The numbers shown here are estimates of the number of students in each category who would have passed had they taken the revised form of the CAHSEE that was first used with the Class of 2006.

For ELA, initial passing rates have increased modestly but consistently from the Class of 2005 to the Class of 2007 tested this year. The overall passing rate for the Class of 2007 was up by about two percentage points from a year ago. Passing rates also increased for nearly all demographic groups.

For mathematics, results for the Class of 2007 were only very slightly higher than for the Class of 2006. Again, students in nearly all categories had higher passing rates than corresponding groups of students in the Classes of 2005 and 2006.

Passing rates for students receiving special education services remain somewhat problematic. More than 70 percent of students receiving special education services did not pass either the ELA or the math test in their initial attempt. If current trends continue, it is likely that a significant number of students receiving special education services will not be eligible to receive a regular diploma.

Table 3.14 shows the percentages of 10th grade students in each demographic group who passed both parts of the CAHSEE in 2005. Here too, results showed modest gains in comparison to results from 2004 for the Class of 2006. Again, students receiving special education services are having particular difficulty passing the CAHSEE. Roughly 80 percent of the students in this category had not yet passed both parts of the CAHSEE at the end of the 10th grade.

The results by race and ethnicity were confounded to some extent due to interactions of race and ethnicity with other demographic characteristics. In particular, a higher proportion of Hispanic students were in special education, a higher proportion of Black and Hispanic students were economically disadvantaged compared to White students, and a higher proportion of Hispanic students were English learners. We further analyzed test results for the census testing of the Class of 2007 to show separate race/ethnicity results within different types of disadvantages, as shown in Table 3.15. The first three categories include students with a single disadvantage group only, special education, English learner, or economically disadvantaged. The next four categories include various combinations of these conditions and the final category includes students for whom none of these conditions apply.

In general, passing rates are lower for students with more than one disadvantage. Note that Hispanic and particularly African American students have significantly lower passing rates within each specific category.

Table 3.14. Percent of 10th Grade Students Passing Both Parts of the CAHSEE by Demographic Group

Group	Students Tested			Percent Passing Both Parts		
	Class of 2005	Class of 2006	Class of 2007	Class of 2005*	Class of 2006	Class of 2007
All Students	425,066	459,138	470,891	59.3%	64.3%	65.4%
Females	207,619	224,766	230,425	61.4%	67.1%	68.1%
Males	216,708	233,964	239,214	57.3%	61.7%	62.8%
1. Native American	3,717	4,227	4,270	55.6%	59.9%	59.6%
2. Asian	38,635	42,588	42,699	77.7%	81.5%	82.5%
3. Pacific Islander	2,832	3,107	3,299	56.0%	60.4%	63.4%
4. Filipino	12,475	13,349	13,592	76.3%	80.8%	81.3%
5. Hispanic	169,704	188,494	194,211	42.5%	49.0%	51.1%
6. African American	34,619	37,287	39,501	39.5%	45.3%	46.4%
7. White (not Hispanic)	157,498	165,613	164,927	76.5%	80.7%	81.4%
Economically Disadvantaged (Original Definition)	141,401	162,530	175,446	41.7%	48.0%	50.4%
Economically Disadvantaged (New Definition)	167,869	186,411	197,678	41.3%	47.7%	50.1
English Learners	72,038	83,728	84,358	24.1%	29.6%	30.8%
Reclassified Fluent English	45,320	49,067	53,323	66.7%	76.3%	78.6%
Special Education Students	36,448	42,516	42,677	19.9%	18.8%	20.2%

Table 3.15. Initial 10th Grade Passing Rates by Student Category and Race/Ethnicity

Student Category	Race / Ethnicity	Class of 2006			Class of 2007		
		Number	Percent Pass ELA	Percent Pass Math	Number	Percent Pass ELA	Percent Pass Math
Students with Disabilities (SD) Students Only	Asian	492	62.4%	63.6%	447	57.7%	61.5%
	Black	2,495	19.7%	15.4%	2,513	24.8%	16.9%
	Hispanic	4,280	31.9%	28.8%	4,170	35.1%	30.8%
	White	11,044	52.4%	49.4%	10,580	55.4%	50.5%
English Learners (EL) Only	Asian	3,490	61.6%	85.7%	3,111	62.1%	86.1%
	Hispanic	10,899	40.3%	45.7%	10,509	43.6%	43.8%
	White	1,037	63.0%	71.8%	995	63.0%	72.4%
Economically Disadvantaged (ED) Only	Asian	8,974	91.8%	93.1%	10,402	92.6%	93.5%
	Black	13,056	61.4%	51.8%	14,539	63.2%	52.3%
	Hispanic	62,033	75.6%	70.4%	66,225	79.0%	72.2%
	White	18,732	80.2%	76.4%	19,959	81.6%	77.2%
SD and EL, (Not ED)	Hispanic	1,663	12.2%	14.2%	1,482	16.4%	15.4%
SD and ED (Not EL)	Black	3,323	13.4%	10.2%	3,536	16.3%	10.9%
	Hispanic	5,817	20.2%	19.9%	5,856	24.1%	21.0%
	White	3,656	29.2%	26.6%	3,733	32.9%	29.4%
EL and ED Only (Not SD)	Asian	6,149	50.1%	75.6%	6,025	52.5%	76.6%
	Hispanic	48,448	38.2%	46.5%	49,779	42.4%	46.3%
	White	1,578	51.5%	69.6%	1,476	56.0%	69.2%
SD, EL, and ED	Asian	512	15.6%	29.5%	533	14.8%	28.3%
	Hispanic	6,677	9.0%	12.1%	7,110	12.4%	13.4%
All Other Students (No Disadvantages)	Asian	22,545	96.8%	97.0%	21,748	97.4%	97.3%
	Black	18,025	73.8%	64.8%	18,497	75.8%	65.7%
	Hispanic	48,631	81.7%	76.2%	49,080	83.1%	76.7%
	White	129,255	93.3%	91.4%	127,941	94.0%	91.7%

Note. Race categories with fewer than 300 students for a particular student category are omitted for that category.

Gaps in passing rates by race and ethnicity were smaller for students who were not disadvantaged than they were when all students in each race/ethnicity category were included. More striking, however, was the extent of race/ethnicity differences among students receiving special education services. Passing rates for the ELA test were twice as high for Asian and White students in this category as they were for Black or Hispanic students***. For math, the passing rate for students receiving special education services who were White or Asian was more than twice as high as for students receiving special education services who were Hispanic and more than three times as high as the passing rate for students receiving special education services who were Black.***

Analysis of Results for English Learners

We compared the passing rates for students who were currently English learners and students who were previously English learners but had been reclassified as fluent English proficient (RFEP) as shown in Tables 3.12 and 3.13 above. The results are striking. ELA passing rates for English learners were understandably low, less than 40 percent compared to nearly 73 percent overall. Perhaps because they had to demonstrate language proficiency to be reclassified, students who were no longer English learners passed at higher rates than students in general, 85 percent compared to 73 percent for the Class of 2006. These results were similar to those noted for the Classes of 2005 and 2006.

What may be more surprising is that students who were reclassified as proficient in English also had higher passing rates on the mathematics test compared to students in general, 82 percent versus 72 percent. ***These results suggest that if English learners achieve fluency, the ELA portion of the CAHSEE should not pose a significant barrier for most of them. In addition, these students do not appear to be disadvantaged on the mathematics test once English proficiency is achieved.*** We note, however, that relatively few students classified as English learners in 2004 who retested in 2005 were reclassified as having achieving fluency in 2005. Further analysis is needed to determine how more English learners may be helped to reach fluency status.

Analysis of Results by Mathematics Courses Taken

We analyzed passing rates on the mathematics part of the CAHSEE for students who had completed different levels of math courses. Table 3.16 shows the distribution of the highest level of mathematics course completed by students in the Class of 2007 compared to students in the Classes of 2005 and 2006. Table 3.17 shows the percentage of students in key demographic groups who have not yet taken Algebra I (well below expectation) and the percentage who have taken courses beyond Algebra I (expectation). Students following the expected curriculum would be taking at least geometry by the 10th grade. Table 3.18 shows the CAHSEE mathematics passing rates for students at each course level.

Table 3.16. Distribution of Students by Highest Math Course Taken

Highest Math Course Taken	Class of 2005		Class of 2006		Class of 2007	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
General Math	12,253	3.0%	11,678	2.6%	9,247	2.0%
Pre-Algebra	47,567	11.5%	50,222	11.1%	48,642	9.9%
Algebra I	111,487	26.9%	121,148	26.9%	114,949	24.4%
Integrated Math I	2,727	0.7%	2,605	0.6%	2,120	0.5%
Integrated Math II	4,806	1.2%	3,986	0.9%	3,224	0.7%
Geometry	123,857	29.8%	135,589	30.1%	123,952	31.0%
Algebra II	72,560	17.5%	83,183	18.4%	87,974	17.9%
Advanced Math	7,757	1.9%	9,986	2.2%	11,795	2.5%
Unknown	31,889	7.7%	32,531	7.2%	47,541	10.1%
All Students	414,903	100.0%	450,928	100.0%	470,891	100.0%

Table 3.17. Trends in Math Courses Taken by Demographic Group

Group	Class of 2005		Class of 2006		Class of 2007	
	% Not Taking Algebra	% Beyond Algebra	% Not Taking Algebra	% Beyond Algebra	% Not Taking Algebra	% Beyond Algebra
All Students	15.6%	54.6%	14.8%	55.6%	13.2%	59.6%
Females	14.2%	57.8%	13.5%	59.1%	12.0%	62.9%
Males	17.0%	51.5%	16.2%	52.2%	14.4%	56.5%
1. Native American	23.5%	42.8%	21.4%	42.9%	20.0%	43.8%
2. Asian	6.9%	78.7%	5.5%	80.6%	4.9%	83.8%
3. Pacific Islander	14.4%	54.6%	14.7%	52.6%	12.9%	56.7%
4. Filipino	8.9%	71.7%	8.3%	72.0%	7.2%	75.6%
5. Hispanic	19.6%	42.0%	18.8%	43.4%	16.2%	49.2%
6. African American	17.9%	48.6%	17.1%	48.6%	15.1%	53.4%
7. White (not Hispanic)	13.5%	62.0%	12.8%	63.1%	11.8%	65.8%
Economically Disadvantaged (Original Definition)	18.9%	44.4%	18.1%	45.8%	15.4%	52.1%
Economically Disadvantaged (New Definition)	19.5%	43.4%	18.6%	44.9%	15.9%	51.1%
English Learners	21.5%	33.8%	20.3%	36.8%	17.4%	42.8%
Reclassified Fluent English	11.1%	65.1%	10.2%	66.9%	8.6%	71.7%
Special Education Students	37.3%	19.5%	34.6%	19.0%	29.6%	24.3%

Note. Students whose highest mathematics course was unknown were excluded from this table.

Table 3.18. Initial Mathematics Passing Rates by Class and Highest Math Course Taken

Highest Math Course Taken	Class of 2005*	Class of 2006	Class of 2007
General Math	26.1%	31.2%	31.0%
Pre-Algebra	46.5%	53.8%	54.8%
Algebra I	51.3%	57.7%	57.1%
Integrated Math I	66.1%	75.4%	75.6%
Integrated Math II	83.2%	90.0%	90.4%
Geometry	84.4%	87.1%	85.0%
Algebra II	93.4%	95.3%	96.0%
Advanced Math	98.8%	99.4%	99.5%
Unknown	39.2%	50.0%	41.2%
All Students	66.1%	71.8%	72.1%

*Note. Passing rates for students in the Class of 2005 were adjusted to reflect estimated rates for the new score scale.

As shown in Table 3.17, the Class of 2007 through 10th grade had taken slightly higher levels of mathematics compared with the Classes of 2005 and 2006. The percentage of students who had not yet taken Algebra I dropped from 14.8 percent to 13.1 percent and the percentage of students taking mathematics courses beyond algebra in the 10th grade rose from 55.6 percent to 59.6 percent. Note, however, that a much larger proportion of students receiving special education services had not yet taken algebra.

At each course level, the passing rate for the Class of 2007 was essentially the same as the rate for the Class of 2006. As in past years, the differences across course levels are dramatic. Only 31 percent of students who had taken only General Math passed the CAHSEE mathematics test compared to 57 percent of students who had taken algebra, 85 percent of students who had taken geometry, and 96 percent of students who had taken Algebra II.

Improvement for 11th Graders Who Retested

Roughly one-third of the students in the Class of 2006 did not pass both parts of the CAHSEE in the 10th grade. During the 2004–05 school year, these students had one or more chances to take the CAHSEE again. We analyzed their retest results to assess the degree to which they had made progress in mastering the skills tested by the CAHSEE. We sought to determine how many had now passed the CAHSEE and, for those who had still not passed both parts, the extent to which they were getting closer to passing. These analyses are particularly important since the Class of 2006 is the first that is required to pass the CAHSEE. Assessing their progress through 11th grade will allow some assessment of how many students might eventually be denied a diploma because they have not passed the CAHSEE.

We began by looking at how close to passing these students were in the 10th grade. Tables 3.19 and 3.20 show the average ELA and mathematics score

respectively for Class of 2006 students in different demographic groups who took, but did not pass the CAHSEE in the 10th grade[6]. In addition to the average scale score, we also computed the percentage of students who were within 20 points of the minimum passing score of 350. Prior data for the Class of 2004 indicated average growth of about 10 points between 10th and 11th grade (albeit on a slightly different scale). Twenty points represents two years of improvement at approximately 10 points per year.

Due to difficulty in matching records from the 2004 and 2005 administrations and lacking information on which students dropped out, transferred out of state, or were retained in the 10th grade, we do not know what happened to all of the students who did not pass in 2004. Tables 3.19 and 3.20 also show the mean 2004 scores and the percentage within 20 points of passing for the students who we do know retested as 11th graders.

Table 3.19. ELA Mean Scores for Students Who Tested in 2004 But Did Not Pass

Group	All Students Testing but not Passing in 2004			Students Retested in 2005 (Matched Records)		
	Number	2004 Mean	Percent 330 – 349	Number	2004 Mean	Percent 330 – 349
All Students	115,622	324.0	46.8%	85,210	325.6	49.9%
Females	46,895	326.2	51.3%	35,464	327.3	53.8%
Males	68,519	322.6	43.8%	49,665	324.4	47.1%
2. Asian	6,551	325.7	50.7%	5,434	327.1	53.5%
5. Hispanic	71,007	323.3	44.9%	52,190	324.8	47.8%
6. African American	13,712	322.6	43.7%	9,466	324.5	46.8%
7. White (not Hispanic)	19,371	326.8	53.7%	14,618	328.2	56.6%
Economically Disadvantaged	73,166	323.0	44.1%	53,788	324.5	47.0%
English Learners	49,940	321.5	40.1%	38,159	322.9	42.8%
Special Education Students	29,043	316.3	29.4%	22,851	317.9	31.8%

[6] These analyses were based on smaller samples in comparison to the analyses of the results for 10th graders. Consequently results are reported here for only the more frequent categories of race and ethnicity.

Table 3.20. Mathematics Mean Scores for Students Who Tested in 2004 But Did Not Pass

Group	All Students Testing but not Passing in 2004			Students Who (We Know) Retested in 2005		
	Number	2004 Mean	Percent 330 - 349	Number	2004 Mean	Percent 330 – 349
All Students	121,464	330.4	59.2%	88,642	331.8	62.5%
Females	57,539	331.9	63.5%	43,463	333.0	66.3%
Males	63,712	329.1	55.3%	45,103	330.7	59.0%
2. Asian	3,802	332.7	66.6%	3,020	334.0	70.2%
5. Hispanic	72,745	330.4	58.9%	52,964	331.7	62.1%
6. African American	16,863	328.1	52.2%	11,888	329.8	56.0%
7. White (not Hispanic)	22,660	331.7	63.9%	17,042	333.1	66.7%
Economically Disadvantaged	72,752	329.8	57.2%	52,539	331.1	60.5%
English Learners	42,024	329.5	55.9%	31,373	330.7	58.9%
Special Education Students	29,279	323.4	38.0%	23,058	332.5	40.9%

For ELA, students who did not pass in 2004 averaged about 25 points below the passing level; slightly fewer than half were within 20 points of passing. For mathematics, the average score was only 20 points below the passing levels and roughly 60 percent were within 20 points of passing. Students who we do know retested averaged about two points higher and about five percent more of them were within 20 points of passing compared to all of the students who did not pass in 2004. In both cases, students in special education programs were further from passing. Only 30 percent were within 20 points on the ELA test and 38 percent were within 20 points on the mathematics test.

Gain Scores

For students who retested in 2005, we compared their scores as 11th graders, using their first attempt if they tested more than once, to their scores from 2004. Figures 3.1 and 3.2 show the average retest scores for students at different 2004 score levels. In these analyses, we grouped the 2004 scores in 5-point intervals and computed the average 2005 score for students in each of these intervals.

Not surprisingly, there is a clear relationship between their initial scores and their retest scores. One exception to this trend, however, was for students who initially scored below 300 on the mathematics test. These students had the same average retest scores, between 312 and 315, regardless of how far below 300 they had scored in 2004. The reason for this apparent anomaly is guessing. The mathematics test consists of 80 multiple-choice questions, each with 4 options. A student with no knowledge who randomly selects an option will, on average, answer 20 items correctly by chance alone. A number-correct score of 20 translates to a scale score of between 303 and 305. Students who score below this level do not really know less than nothing, they most likely simply had worse than average luck with their guesses. Thus, it is not really surprising that students who score at or below the chance level all do about the same on the retest. Note that previously the score scale extended down to 250, even though chance

guessing resulted in an expected score of 300. The new score scale introduced in 2004 shortened but did not eliminate the range below chance. In the analyses that follow, we have not yet adjusted scores below chance back up to chance levels.

For ELA, the effects of random guessing are not as pronounced due to the inclusion of the essay. No amount of luck alone can raise a student's essay score above zero. Chance guessing on the multiple choice questions will lead to an average raw score of 18.5 points, which translates to a scale score between 281 and 285.

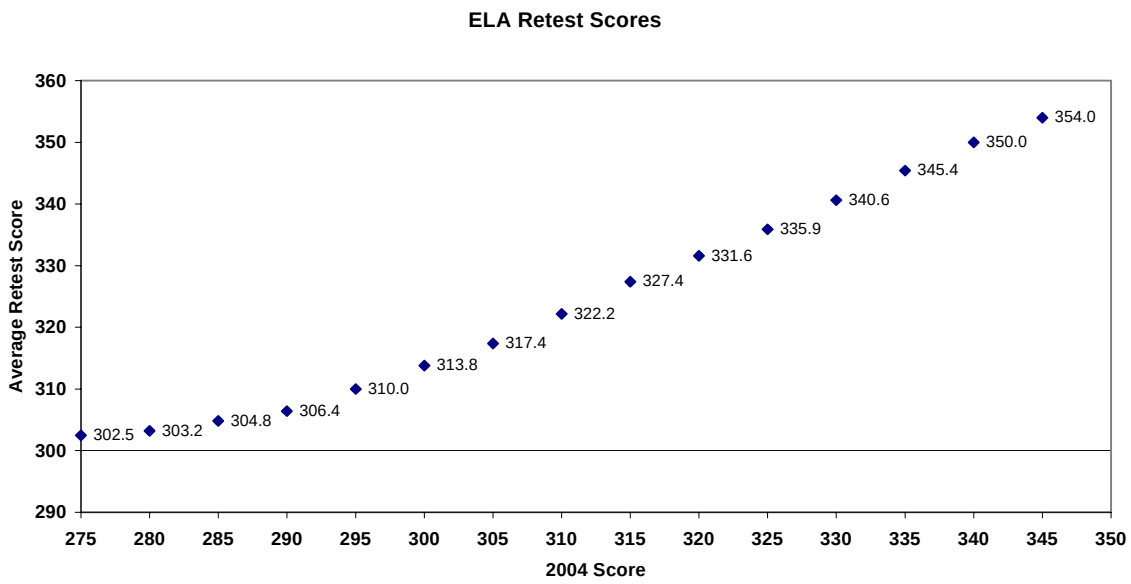


Figure 3.1. Average ELA retest score by 2004 score level.

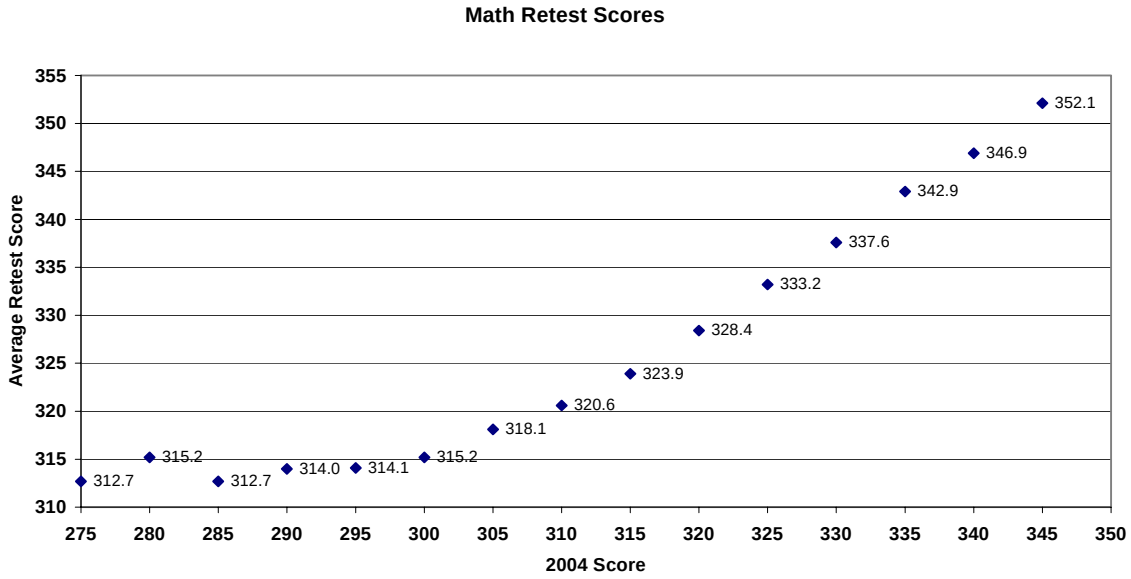


Figure 3.2. Average mathematics retest score by 2004 score level.

Table 3.21 shows the average score gain and percentage of students passing for different demographic groups who retested in 2005. For all students, the average score gain was 11.6 in ELA and 8.3 in mathematics. The difference in score gains balanced out the difference in 2004 means noted above (where there was a higher mean for the mathematics test) so that the percentage passing was essentially the same. The average score gain, and correspondingly the percentage passing, varied by racial and ethnic group and was generally lower for students in special education programs. Only 28 percent of students in special education programs who retested passed the ELA and only 25.5 percent passed the mathematics test compared to 43.9 and 43.7 percent respectively overall.

Table 3.21. Average Score Gains and Percentage Passing for 11th Graders Who Retested in 2005

Group	ELA			Mathematics		
	Number	Mean Gain	Percent Pass	Number	Mean Gain	Percent Pass
All Students	85,210	14.2	42.9%	88,642	10.0	41.6%
Females	35,464	14.5	45.2%	43,463	9.5	42.3%
Males	49,665	14.0	41.3%	45,103	10.4	40.9%
2. Asian	5,434	16.9	49.4%	3,020	13.0	51.7%
5. Hispanic	52,190	13.4	39.8%	52,946	9.4	40.2%
6. African American	9,466	13.1	40.2%	11,888	8.1	34.0%
7. White (not Hispanic)	14,618	16.8	52.2%	17,042	12.2	48.8%
Economically Disadvantaged	53,788	13.3	39.2%	52,539	9.3	39.0%
English Learners	38,159	13.2	35.7%	31,373	9.2	37.3%
Special Education Students	22,851	11.1	27.4%	23,058	7.3	24.6%

A key question is how many students in the Class of 2006 have now passed both parts of the CAHSEE and completed the CAHSEE requirement for graduation. Unfortunately, it is difficult to answer this question with precision. We estimated that 175,216 11th graders participated in the 2004-05 CAHSEE testing, The actual number of individual students is somewhat smaller due to students taking the CAHSEE more than once at different schools and/or with differences in the coding of name and birth date. If we were unable to match the record from their second administration to the record for their first, we counted them twice.

The second difficulty in determining the number of students who completed the CAHSEE requirement was in matching 2004 10th grade results with 2004–05 11th grade results. A total of 48,732 11th grade records from the 2004–05 administrations could not be matched to any of the 2004 10th grade records. At the same time, 37,872 students who tested as 10th graders in 2004 and did not pass both parts were not matched to any of the 2004–05 CAHSEE records. In order to estimate the number of students completing the requirement by the end of 11th grade, we assumed that unmatched students who only took one part of the CAHSEE in the 11th grade had passed the other part in the 10th grade. Unmatched students who took both parts in the 11th grade were assumed not to have passed either part in 10th grade.

Perhaps more important than the number of students who have completed the requirement is the number of students who are still trying to complete the requirement, but have not yet done so. We know, approximately, how many 11th grade students were still trying to complete the CAHSEE during the 2004–05 school year. Again, problems in matching across administrations within the 2004–05 school year and problems matching to 10th grade records from the 2004 administrations limit the precision with which the number of students who have yet to complete the CAHSEE requirement can be estimated.

Table 3.22 gives our best estimates of the number and percentage of 11th grade students who passed both parts, one part, or neither part of the CAHSEE requirement by the end of the 2004–05 school year. There is likely a margin of error of about two percentage points in the estimates of the percent of each group completing the CAHSEE requirement due to the matching issues noted above. As with the 10th grade results, completion rates for Hispanic, African American, economically disadvantaged, and English Learner students were considerably lower than the overall rate. The completion rate for students receiving special education services is, again, much lower still.

Table 3.22. Estimated Passing Rates for Class of 2006 After 11th Grade

	Passed Both		ELA Only		Math Only		Passed Neither	
Group	Number	%	Number	%	Number	%	Number	%
All Students	363,036	78%	28,863	6%	24,048	5%	47,026	10%
Females	183,086	81%	16,317	7%	8,818	4%	19,215	8%
Males	179,786	76%	12,543	5%	15,214	6%	27,798	12%
Asian	39,292	89%	659	1%	2,543	6%	1,515	3%
Hispanic	125,611	68%	15,759	8%	14,976	8%	29,626	16%
African American	23,784	63%	4,787	13%	1,896	5%	7,177	19%
White, non-Hispanic	152,571	90%	6,149	4%	3,568	2%	6,578	4%
Economically Disadvantaged	121,442	66%	15,406	8%	15,602	9%	30,627	17%
English Learner	41,815	51%	6,821	8%	13,082	16%	20,099	25%
Special Education	14,668	35%	5,176	13%	3,999	10%	17,492	42%

Notes: Passing rates are based on students who have passed in the 10th grade or who were still taking the exam as 11th graders in 2005. Estimates are only approximate because of difficulties in matching 10th and 11th grade results. Unmatched 11th graders who took only one of the two tests were assumed to have passed the other in 10th grade; those who took both tests were assumed to have passed neither in 10th grade. Note also that gender information was missing much more frequently for students who had not passed both parts.

Table 3.23 shows the change in cumulative completion rates from the end of 10th grade to the end of 11th grade. Note that the bases for computing these rates were somewhat different. The 10th grade rates are based on all students participating in the 10th grade. (Due to NCLB participation requirements, this should have been essentially all enrolled students.)The 11th grade rates are based on all students who have completed the CAHSEE requirement, plus those still trying to do so in the 11th grade[7]. Overall, the base was one percent higher for the 11th grade completion rate

[7] The base for computing the 11th grade completion rates was slightly larger than the base for computing the 10th grade rates. There were more unmatched 11th grade records from 2004–05 than unmatched 2004 10th grade records. Due to enrollment declines from the 10th to 11th grade, the base would be expected to be smaller for the 11th grade computations. Some unknown number of students who completed the requirement in 2004 were not counted as 11th graders in the 2004–05 school year. Additional enrollment data will be analyzed to improve the precision of completion rate estimates for our Biennial Report to the Legislature, due to be released February 1, 2006.

calculations. The difference for most groups was only one percent, except that the base was 7 percent smaller for English Learners. Schools may have felt that some of the English Learners were not yet ready to take the CAHSEE when it was not required for NCLB accountability. Others may have been reclassified as fluent in English.

Table 3.23. Change in Percent Completing CAHSEE Requirement from 10th to 11th grade by Demographic Group

Group	Percent Passing Both by: 10th Grade	11th Grade	Increase in 11th grade
All Students	64%	78%	+14%
Females	67%	81%	+14%
Males	62%	76%	+14%
2. Asian	82%	89%	+7%
5. Hispanic	49%	68%	+19%
6. African American	45%	63%	+18%
7. White (not Hispanic)	81%	90%	+9%
Economically Disadvantaged	48%	66%	+18%
English Learners	30%	51%	+22%
Special Education Students	19%	35%	+16%

Notes. The 10th grade results were based on all 10th grade students tested in Feb., March, and May 2004, after matching records for students participating in more than one of these administrations. The 11th grade results were based on all students completing the CAHSEE requirement in either 10th or 11th grade plus those students who tested in the 11th grade, but have not yet completed the CAHSEE requirement. Assumptions about 11th grade students whose records could not be matched to 10th grade results are noted above.

School-Level Effects

A key question that was debated before the state legislature this year was whether schools vary significantly in their effectiveness in preparing students to pass the CAHSEE. It is, of course, difficult to separate school-level effects of curriculum and instruction from effects associated with differences in the type and preparation of students served. In this section, we first examine differences in passing rates for targeted groups of students by the density of these students within the school. Then we turn to statistical models to examine student, school, and district differences in CAHSEE passing rates while controlling for other variables in each of the three levels.

Difference in School-Level Passing Rates

Table 3.24 shows the percentage of schools with very low (0–50%), low (> 50–75%), moderate (>75–90%), and high (> 90%) ELA passing rates for schools with different concentrations of minority or at-risk students. Passing rates were not computed for schools with fewer than 10 students in the targeted group and these schools were excluded. Table 3.25 shows the equivalent results for mathematics. With the possible exception of ELA passing rates for English Learners, students in schools with high concentrations of at-risk students are far less likely to pass the CAHSEE.

Table 3.24. 2005 10th Grade ELA Passing Rates for Schools with Different Concentrations of Minority or At-risk Students

School Category	Number of Schools	Percent of Schools at Each Passing Level			
		Very Low (0–50%)	Low (>50–75%)	Moderate (>75–90%)	High (> 90%)
		Passing Rates for All Students			
All Schools	2335	37.0%	27.4%	23.0%	12.6%
		Passing Rates for Hispanic Students			
Low Hispanic (0–20%)	268	4.5%	34.0%	45.1%	16.4%
Moderate Hispanic (>20–60%)	674	27.9%	54.5%	15.7%	1.9%
High Hispanic (> 60%)	395	44.6%	50.6%	3.3%	1.5%
		Passing Rate for African American Students			
Low African Amer. (0–4%)	161	5.6%	39.1%	34.2%	21.1%
Moderate African Amer. (>4–12%)	241	9.5%	58.5%	26.1%	5.8%
High African Amer. (> 12%)	338	42.0%	41.4%	12.7%	3.9%
		Passing Rate for Economically Disadvantaged Students			
Low Economically Disadvantaged (0–20%)	235	6.4%	58.7%	29.8%	5.1%
Moderate Economically Disadvantaged (>20–60%)	670	24.5%	59.3%	12.7%	3.6%
High Economically Disadvantaged (> 60%)	523	50.7%	41.5%	6.1%	1.7%
		Passing Rate for English Learners			
Low EL (0–10%)	239	64.4%	30.5%	4.6%	0.4%
Moderate EL (>10–33%)	447	80.8%	17.2%	1.1%	0.9%
High EL (> 33%)	234	77.4%	19.7%	1.3%	1.7%
		Passing Rate for Students Receiving Special Education Services			
Low SD (0–8%)	282	75.2%	20.9%	3.2%	0.7%
Moderate SD (>8–12%)	432	82.4%	15.1%	2.5%	0.0%
High SD (>12%)	221	92.3%	6.8%	0.9%	0.0%

Table 3.25. 2005 10th Grade Mathematics Passing Rates for Schools with Different Concentrations of Minority or At-risk Students

School Category	Number of Schools	Percent of Schools at Each Passing Level			
		Very Low (0–50%)	Low (>50–75%)	Moderate (>75–90%)	High (> 90%)
		Passing Rates for All Students			
All Schools	2335	45.1%	25.5%	20.0%	9.4%
		Passing Rates for Hispanic Students			
Low Hispanic (0–20%)	268	8.6%	36.2%	44.0%	11.2%
Moderate Hispanic (>20–60%)	674	36.5%	48.7%	13.6%	1.2%
High Hispanic (> 60%)	395	51.1%	42.8%	5.1%	1.0%
		Passing Rate for African American Students			
Low African Amer. (0–4%)	161	14.3%	46.0%	28.6%	11.2%
Moderate African Amer. (>4–12%)	241	24.9%	56.9%	17.0%	1.2%
High African Amer. (> 12%)	338	61.5%	30.5%	6.8%	1.2%
		Passing Rate for Economically Disadvantaged Students			
Low Economically Disadvantaged (0–20%)	235	7.2%	58.3%	28.9%	5.5%
Moderate Economically Disadvantaged (>20–60%)	670	30.9%	54.3%	12.8%	1.9%
High Economically Disadvantaged (> 60%)	523	58.1%	33.6%	6.3%	1.9%
		Passing Rate for English Learners			
Low EL (0–10%)	239	43.1%	40.2%	12.6%	4.1%
Moderate EL (>10–33%)	447	64.9%	29.3%	4.7%	1.1%
High EL (> 33%)	234	67.1%	28.2%	4.3%	0.4%
		Passing Rate for Students Receiving Special Education Services			
Low SD (0–8%)	282	79.4%	17.7%	2.5%	0.4%
Moderate SD (>8–12%)	432	84.7%	13.4%	1.9%	0.0%
High SD (>12%)	221	96.4%	3.2%	0.5%	0.0%

As a result of the Williams Case (Williams v. California), about 2000 low-performing schools are being monitored, including just over 300 high schools. The schools being monitored were in the lowest three deciles (essentially below the 30th percentile) on the 2003 Academic Performance Index (API). Table 3.26 shows how these low-performing schools compared to all other schools in terms of CAHSEE passing rates for different groups of students. Differences at the low end were not consistent. In some cases a greater proportion of the non-Williams schools were in the very low passing rate category. At the top end, however, the Williams schools were consistently less likely to have moderate to high passing rates for each of the student groups analyzed.

Table 3.26. 2005 10th Grade Passing Rates for Low-Performing Schools

Student Category	School Type	Percent of Schools at Each Passing Level			
		Very Low (0-50%)	Low (>50-75%)	Moderate (>75-90%)	High (> 90%)
		English Language Arts			
All Students	Williams	18.1%	70.3%	11.0%	0.6%
	Other	40.2%	20.5%	24.9%	14.6%
Hispanic Students	Williams	23.9%	70.4%	4.1%	1.6%
	Other	45.2%	30.1%	13.7%	13.0%
African American Students	Williams	34.1%	49.5%	7.3%	9.1%
	Other	40.0%	23.0%	14.8%	22.2%
Economically Disadvantaged	Williams	25.2%	68.9%	3.4%	2.5%
	Other	45.4%	34.7%	10.9%	9.0%
English Learners	Williams	82.8%	15.5%	0.7%	1.0%
	Other	76.2%	15.5%	1.9%	6.4%
Students with Disabilities	Williams	97.4%	1.3%	0.0%	1.3%
	Other	79.6%	11.8%	2.0%	6.6%
		Mathematics			
All Students	Williams	28.2%	65.0%	6.8%	0.0%
	Other	47.9%	19.1%	22.2%	10.8%
Hispanic Students	Williams	36.2%	58.2%	5.0%	0.6%
	Other	51.3%	26.6%	13.3%	8.8%
African American Students	Williams	59.6%	31.0%	2.4%	7.0%
	Other	49.8%	24.0%	11.1%	15.1%
Economically Disadvantaged	Williams	33.8%	61.9%	3.1%	1.2%
	Other	52.6%	30.0%	10.6%	6.8%
English Learners	Williams	72.1%	22.8%	1.7%	3.4%
	Other	65.2%	21.8%	5.4%	7.5%
Students with Disabilities	Williams	97.4%	1.3%	0.0%	1.3%
	Other	79.6%	11.8%	2.0%	6.6%

Note. The Williams case involved tracking the lowest-performing schools. The schools being monitored were those in the lowest three deciles based on 2003 Academic Performance Index (API) values. This table compares CAHSEE results for 326 Williams high schools and 2009 other high schools (essentially the top seven deciles).

Models of School and District Effects

Heretofore it has been very difficult to distinguish the effectiveness of the school from the background and preparation of the students served by the school. Schools whose students score well on the CAHSEE (or any other assessment) may simply be serving students with family backgrounds or other attributes that have prepared them to succeed. While it is possible to match schools on the basic demographics of the students served, it is almost certain that differences in unmeasured background characteristics will confound such comparisons.

With the 2005 results for 11th graders, analyses of school-level effects are more tenable. The availability of scores from the 2004 assessment allow us to examine

school differences in helping students who do not initially pass the CAHSEE while adjusting for differences in the initial student scores.

The analyses reported here use hierarchical linear models (HLM) in which variables related to student scores are included at the student, school, and district levels. The models examine variation in student scores within schools, across schools within a district, and across districts. At each level, explanatory (predictor) variables are examined to determine the extent to which variation in scores is related to each explanatory variable, after effects of the other variables are controlled. The models examined to date are simple main-effects models where the relationship of the explanatory variables to student scores is assumed to be constant across schools and districts. It would be possible to examine more complicated models in which the explanatory power of student (school) level variables is modeled as a function of school (district) level variables. The interpretation of results from such models is difficult and so we have deferred fitting more complex models for the present.

Student, School, and District Information Analyzed

The data structure for the HLM analyses included three levels: student, school and district. We used HLM to examine the degree of variation in scores at each level and to explore the relationship between the predictors at each level and CAHSEE 2004–05 score gains. We specifically examined the score gains between the first time the students took the test in February, March, or May of 2004 (referred hereafter as “2004 Score”), and the last time they retook the test in Year 2004–2005 (referred hereafter as “2005 Score”). None of the students who retook the exam during 2004–2005 had passed the exam in Year 2003–2004. Tables 3.27 and 3.28 provide descriptive statistics for ELA and mathematics scores respectively for each of the student-level variables in the HLM analyses.

Table 3.27. Descriptive Statistics of Student 2004 Score, 2005 Score, and 2004–2005 Score Gains on the CAHSEE ELA Test by Student-Level Variables

Student Groups	N	Percent	2004 Score		2005 Score		2004-05 Gain	
			Mean	S.D.	Mean	S.D.	Mean	S.D.
All Students	86,939	100.0%	326.4	18.8	340.2	25.8	13.7	21.0
Gender								
Females	36,425	41.9%	328.3	18.2	342.3	24.2	13.9	19.6
Males	50,514	58.1%	325.0	19.1	338.6	26.8	13.6	21.9
Ethnicity								
Native American	754	0.9%	326.6	19.0	338.8	28.1	12.3	23.2
Asian	5,537	6.4%	327.5	17.8	344.1	23.5	16.7	19.2
Pacific Islander	692	0.8%	330.0	18.8	342.4	24.7	12.4	21.5
Filipino	1,412	1.6%	332.1	16.3	346.5	23.4	14.4	19.3
Hispanic	53,229	61.2%	325.4	18.7	338.4	25.1	13.0	20.0
African American	9,883	11.4%	325.7	19.5	338.2	26.8	12.5	21.4
White (not Hispanic)	15,222	17.5%	329.4	19.0	345.6	27.6	16.1	23.9
Missing Ethnicity	210	0.2%						
Students Testing with Modifications	2,634	3.0%	316.9	19.7	325.6	27.2	8.7	23.3
Students Receiving Special Education Services	23108	26.6%	318.4	19.4	329.3	26.9	10.8	21.4
Economically Disadvantaged[1]	54651	62.9%	325.1	18.7	338.0	25.2	12.9	20.1
Language Proficiency								
English Only	38,788	44.6%	328.1	19.1	342.1	27.2	14.1	22.6
Initially Fluent English Proficient (FEP)	4,641	5.3%	331.6	17.7	346.5	24.8	14.9	21.5
English Learners	38,561	44.4%	323.2	18.4	336.2	24.2	13.0	19.3
Redesignated FEP	4,933	5.7%	334.1	15.5	350.1	22.0	16.1	18.9
Missing Proficiency	16	0.0%						

[1] Economically disadvantaged students refer to those whose parents do not have a high school diploma or who participate in the free/reduced price lunch program because of low family income.

Note. Course information is not available for language arts.

Table 3.28. Descriptive Statistics of Student 2004 Score, 2005 Score, and 2004–2005 Score Gains on the CAHSEE Math Test by Student-Level Variables

Student Groups	N	Percent	2004 Score		2005 Score		2004-05 Gain	
			Mean	S.D.	Mean	S.D.	Mean	S.D.
All Students	90,003	100.0%	332.1	14.1	342.1	20.4	9.7	17.0
Gender								
Females	43,956	48.8%	333.1	13.2	342.7	19.3	9.4	16.0
Males	46,047	51.2%	331.1	14.9	341.5	21.3	10.1	17.9
Ethnicity								
Native American	874	1.0%	331.5	14.4	340.8	20.6	9.1	16.8
Asian	3,156	3.5%	335.2	14.9	347.8	21.7	12.4	18.5
Pacific Islander	680	0.8%	332.5	14.9	342.3	21.2	9.3	16.9
Filipino	1,458	1.6%	335.3	12.8	347.2	19.2	11.9	16.6
Hispanic	53,904	59.9%	331.9	13.8	341.3	19.8	9.2	16.6
African American	12,184	13.5%	329.8	14.8	338.2	20.1	7.9	16.1
White (not Hispanic)	17,525	19.5%	333.4	14.3	345.6	21.3	12.0	18.2
Missing Ethnicity	222	0.2%						
Students Testing with Modifications	7,159	8.0%	325.1	15.3	332.8	20.7	7.1	18.0
Students Receiving Special Education Services	23,293	25.9%	325.1	15.0	332.8	20.6	7.1	17.2
Economically Disadvantaged[1]	53,290	59.2%	331.4	14.1	340.8	20.1	9.1	16.7
Language Proficiency								
English Only	46,252	51.4%	332.0	14.5	342.2	20.9	10.0	17.3
Initially Fluent English Proficient (FEP)	5,471	6.1%	334.6	12.7	344.9	19.6	10.2	16.8
English Learners	31,952	35.5%	331.0	14.0	340.2	19.9	8.9	16.8
Redesignated FEP	6,310	7.0%	336.4	11.7	348.4	18.1	11.9	15.7
Missing Proficiency	18	0.0%						
Math Course Taken[2]								
General Math	5,566	6.2%	324.5	15.6	332.2	20.9	7.0	17.1
Algebra	17,309	19.2%	331.3	14.0	340.6	19.9	9.1	17.1
Geometry	38,247	42.5%	332.8	13.3	342.5	19.5	9.5	16.8
Algebra II	14,296	15.9%	336.6	12.2	349.5	19.0	12.8	16.3
Missing Courses	10,679	11.9%						

[1] Economically disadvantaged students refer to those whose parents do not have a high school diploma or who participate in the free/reduced price lunch program because of low family income.

[2] Possible math courses include General Math, Pre-Algebra, Algebra, Integrated Math I, Integrated Math II. Integrated Math III, Geometry, Algebra II, and Advanced Math. Results are shown here for selected course levels.

We retrieved the school-level variables from the web site titled Education Data Partnership (Ed-Data): Fiscal, Demographic, and Performance Data on California's K-12 Schools (located at http://www.ed-data.k12.ca.us). This site is sponsored by the

CDE. Table 3.29 illustrates a brief description of the school-level variables as provided by the Ed-Data website.

Table 3.29. Brief Description of School-Level Demographic Variables for Score Gain HLM Analysis

School-Level Variable	Brief Description
Categorical Variables	
School Type	Assigned in the County-District-School (CDS) file maintained by the Educational Demographics Office in CDE; Values include: Elementary school (usually Grades K–5 or K–6), Middle school (usually Grades 6–8), Junior High school (usually Grades 7–9), High school (usually Grades 9–12), K–12 school, Continuation school, County community school, Community Day school. Alternative school, Opportunity school, Special Education school, State Special Education school, Juvenile Court school and California Youth Authority (CYA) facility
Largest Ethnic Group	The largest ethnic group in the school study body; Values include: African American, Asian, Filipino, Hispanic and Native American
Indicator Variables With 1/0 = “Yes”, 0.0=“No”	
Charter?	Whether the school has been approved as a charter school
Year-round?	Whether or not the school is in session year round
Title I?	Whether or not the school has Title I. Title I is a federal program that provides supplementary services to low-achieving students from low-income families
Numeric Variables	
Enrollment	The number of kindergarten through 12th grade students enrolled in the school on "Information Day," a day in early October of the designated school year
Average Class Size	Calculated by dividing enrollment by the number of classes with 1–50 students, excluding special education and a few other minor categories.
Dropout Rate	Calculated by dividing enrollment by the dropouts for grades 9–12 (CDE has adopted the NCES [National Center for Education Statistics] definition of dropout since 2002–2003.)
% English Learners	The percentage of students who are not proficient in English (formerly Limited English Proficient, LEP) as measured by California English Language Development Test (CELDT)
% Free Meals	The percentage of students enrolled in the program that provides food for students from low-income families.
Ethnic Diversity Index	A measure of school or district diversity among the seven ethnic categories of students reported to the CDE. Numbers close to 100 indicate a fairly even distribution, while numbers closer to 0 mean that students are predominantly from a single ethnic group.
% Minority	The percentage of non-White students in school student body
% Full Teacher Credentials	The percentage of teachers having full teaching credentials
Pupil-Teacher Ratio	The number of pupils per full-time equivalent teacher (usually smaller than average class size)

Tables 3.30 and 3.31 provide information on categorical and continuous school-level variables respectively. A total of 1,703 schools identified in the CDE school directory file had values for these variables.

Table 3.30. Frequencies of Categorical School-Level Variables (Total Number of Distinct Schools Observed = 1,686)

School Type	Frequency	Percent
Regular Schools (including: Elementary, Middle, Junior High, High, K–12 schools)	902	53.5%
Continuation School	410	24.3%
Other Alternative Education School (including: Alternative, County Community, Community Day, and Opportunity Schools)	285	16.9%
Juvenile Court School	48	2.8%
Special Education School	41	2.4%
Largest Ethnic Groups		
African American	63	3.7%
Asian	47	2.8%
Filipino	744	44.1%
Hispanic	5	0.3%
Native American	8	0.5%
White	819	48.6%
Title I Schools	778	46.1%
Year-round schools	181	10.7%

Table 3.31. Descriptive Statistics of Numeric School-Level Variables

Variables	Frequency	Mean	S.D.	Minimum	Maximum
Enrollment	1,686	1051.9	1131.6	1	5299
Average Class Size	1,491	23.5	7.6	1	50
Dropout Rate	1,673	6.5	13.5	0	189
% English Learners	1,686	15.1	18.4	0	100
% Free Meals	1,686	38.5	29.3	0	100
% Minority	1,687	57.7	28.2	0	100
% Full Teacher Credentials	1,675	87.2	16.2	0	100
Pupil-Teacher Ratio	1,682	22.0	8.8	0	158

In addition to the demographics, we sought to know the relationship between school financial resources and student score gains on CAHSEE. We used the finance variables at the district level for the analysis. Table 3.32 displays a brief description of the district-level finance variables, which are the summary categories of district revenues and expenditures. The descriptions are compiled from the glossary of the categories and *A Guide to California's School Finance System*, posted at the Ed-Data website ("*A Guide*," 2005). These data are based on district financial statements submitted to the state annually. Table 3.33 shows descriptive statistics for these variables.

The values of the finance variables are in the unit of dollars-per-student. The total revenues are larger than the total expenditures because the expenditures under Capital Outlay, Other Outgo and Direct Support/Indirect Costs are not part of the finance report. As shown in Table 3.26, one category under the Revenue is called Revenue Limit. This is set by the state legislature and governor to equalize school funding, with adjustments for differential inflation (cost of living) among districts ("*A Guide*," 2005). Revenue Limit can thus be used to adjust for the differences in cost of living when the district revues and expenditures are compared in the HLM analysis.

Table 3.32. Brief Description of District-Level Finance Variables for Score Gain HLM Analyses (Unit: Dollars-per-Student [ADA])

District-Level Variable	Brief Description
Revenues	
Revenue Limit	The specific combination of state and local property taxes a school district may receive per pupil (ADA) for its general education program
Federal Revenues	Funds from the federal government
Other State Revenues	Funds from the state's budget: business, corporate and personal income taxes, sales taxes, and some special taxes; and state lottery sales
Other Local Revenues	Funds from local property taxes
Expenditures	
Certificated Salaries	Salaries for certificated employees who are required by the state to hold teaching credentials, including full-time, part-time, substitute, or temporary teachers and most administrators
Classified Salaries	Salaries for classified employees whose positions do not require certifications
Employee Benefits	Benefits for school employees
Books and Supplies	Expenditures for items such as textbooks and other books, instructional materials and supplies, and pupil transportation
Services, Other Operating Expenses	Expenditures for items such as rentals, leases and repairs, personal services of instructional consultants

Table 3.33. Descriptive Statistics of District-Level Finance Variables for Score Gain HLM Analyses (Unit: Dollars-per-Student [ADA])

District-Level Variables	Frequency	Mean	S.D.	Minimum	Maximum
Revenue Limit	433	4,263	39,631	5,671	2,318
Federal Revenues	433	106	6,223	738	677
Other State Revenues	433	191	12,871	1,183	785
Other Local Revenues	433	14	5,497	637	646
Total Revenues	433	6,010	59,183	8,228	3,547
Certificated Salaries	433	2,786	9,286	3,701	685
Classified Salaries	433	586	7,290	1,254	579
Employee Benefits	433	733	4,321	1,474	526
Books and Supplies	433	143	2,494	445	246
Services, Other Operating Expenses	433	332	13,606	861	790
Total Expenditures	433	5,749	28,318	7,735	2,390

Results of HLM Analyses

Table 3.34 shows how the variation in student scores was divided among students, schools, and districts. In the section, labeled “Fully Unconditional Model,” we looked at the variance in student scores within each school, the variance in mean scores across schools within the same district, and the variance in mean scores across districts. The other two sections, labeled “Growth Model 1” and “Growth Model 2,” show variance in scores at each level after taking out variation associated with the predictor variables described above. Model 2 differs from Model 1 in that the 10th grade score is included as an additional predictor.

As shown in Table 3.34, the variation is student scores within each school is very large (more than 95% of the total) in comparison to the variation in school or district means. All schools include students who do well on the CAHSEE and students who do not. Differences in the schools or districts attended have very small effects on student score levels relative to these differences. Another point to note is that adding predictors in Models 1 and 2 does not explain very much of the variation in student scores. While the reductions in total variance (the part not explained by the predictors) is statistically significant, it is not large.

Table 3.34. Variation in 11th Grade Student Gain Scores at the Student, School, and District Levels

Source	ELA Variance	ELA Percent of Total	Mathematics Variance	Mathematics Percent of Total
Fully Unconditional 2005 Score Model[1]				
Students	427.0	96.4%	279.4	95.7%
Schools	10.3	2.3%	8.1	2.8%
District	5.9	1.3%	4.4	1.5%
Total	443.2	100.0%	291.9	100.0%
Growth Model 1 With Predictors (No 2004 Score)[2]				
Students	405.3	96.9%	264.3	96.1%
Schools	8.7	2.1%	6.8	2.5%
District	4.3	1.0%	3.9	1.4%
Total	405.3	100.0%	275.0	100.0%
Growth Model 2 With Predictors (Including 2004 Score)[2]				
Students	390.4	96.7%	253.0	95.8%
Schools	9.3	2.3%	7.3	2.8%
District	4.2	1.0%	3.7	1.4%
Total	403.9	100.0%	264.1	100.0%

[1] All cases with gain scores were included in the fully unconditional model, including 86,939 ELA gain scores and 90,003 mathematics gain scores.

[2] Students with missing values for any of the predictor variables were excluded from these analyses, leaving including 81,196 ELA gain scores and 75,542 mathematics gain scores.

Table 3.35 shows the strongly significant predictors of student scores[8]. The regression coefficients shown indicate how much average change in gain scores will result from each unit change in the predictor variable. All the predictors except for the district finance variables are indicator variables scored one for some group or condition and zero otherwise. In this case, the coefficient estimates the mean score difference for the indicated group versus all other students (or schools or districts). For example, students whose highest math course was geometry gained 6.22 points more, on average, compared to all other students, after also taking into account differences on the other predictor variables.

The district finance variables shown in Table 3.32 above are in dollars. As shown in Table 3.35, a change of one dollar would lead to a predicted increase of .002 in CAHSEE ELA scale scores. Thus, an increase of $1,000 in certified salaries per student (ADA) corresponds to an average of 2-point-higher gains on the CAHSEE ELA tests.

[8] We used the .001 level of significance, meaning that there was only one-tenth chance in a hundred that the observed relationship of the predictor to student scores was due to chance factors.

Table 3.35. Significant Predictors (p < .01) for the Growth Model

Predictor	Regression Coefficient	
	ELA	Mathematics
Number of Students	81,196	74,542
Student Level Predictors		
2004 Score	-0.25	-0.25
Gender (1=Male, 0=Female)	Not Significant	1.39
African American	-4.09	-4.18
Hispanic	-3.23	-2.34
Native American	-4.28	-2.23
Pacific Islander	-2.20	--3.09
Students with Test Modifications	-3.29	Not significant
Students Receiving Special Education Services	-8.12	-6.17
Economic Disadvantage	-1.63	-0.52
Initially English Proficient	1.44	Not significant
English Learner (EL)	-3.63	-1.88
Reclassified Proficient (RP)	2.29	1.63
Math Courses -Pre-Algebra	Not included	2.61
Math Courses-Algebra	Not included	3.47
Math Courses-Geometry	Not included	8.15
Math Courses-Algebra II	Not included	5.59
Math Courses-Integrated Math II	Not included	5.34
Math Courses-Integrated Math III	Not included	8.66
School Level Predictors (1,543 schools)		
Continuation Schools	-2.55	-2.42
Special Education Schools	Not significant	-3.36
Title I Schools	-0.77	Not Significant
Largest Ethnic Group — Black	-2.47	-1.97
Largest Ethnic Group—Hispanic	-1.59	-1.67
District Level Predictors (433 districts)*		
Certified Salaries	.002	Not significant

Note. The number of students, schools, and districts are lower than listed in the descriptive statistics due to list-wise deletion (only cases with no missing values for any variables involved are retained).

The significance of the student-level predictors closely follows the group differences noted earlier in this chapter. Not surprisingly, taking math courses, particularly geometry, is one of the best predictors of growth in mathematics. Being in a special education program is another significant predictor, in this case of lower score growth. At the school level, regular schools were associated with much larger gains than continuation, Special Education, or Title I schools. Also students in schools where the largest ethnic group is African American or Hispanic students gained less both tests.

The regression coefficients should be interpreted with caution. Unmeasured variables may account for some of the apparent relationships. If so, changing the

predictor variables might not lead to the implied score increases unless the unmeasured variables were changed as well. In addition, some of the variables included (e.g., gender and race) are not amenable to change in any event.

In addition to the main effects, which are the effects of the predictors on gain scores, we have also examined the effects of school and district level variables on student-level variables. For those schools where the largest ethnic group is African American, the effects on student gain scores of taking Geometry were about 2.5 points lower than at other schools. Significant negative interaction effects were also found between African American students and Geometry courses. Further analyses of school-level effects will be documented in a separate report and summarized in our Biennial Report to be released in February 2006.

Summary of Findings

Results from the three CAHSEE administrations during the 2004–05 school year were analyzed separately for 10th grade students in the high school Class of 2007 and 11th grade students in the High School Class of 2006. The results for 10th graders were very similar to last year's results for 10th graders in the Class of 2006. Passing rates improved slightly for the ELA exam and were about the same for the mathematics exam. Passing rates for different demographic groups were also largely unchanged. Students receiving special education services continued to have considerably more difficulty in passing the CAHSEE compared to all other groups of students.

Students in the Class of 2006, who retested as 11th graders, showed some improvement in their scores. About half of those testing each part had passed that part by the end of the 11th grade. Conversely, about half of those retested members of the Class of 2006 still have not passed. In addition, some unknown, but possibly large number of students who did not pass in 2004 appears not to have retested in 2005. As noted above in Table 3.4a, we could not find 2005 test records for 37,876 students (about 8 percent of all 2004 10th graders) who tested, but did not pass in 2004. Some of these students likely did test in 2005, but with identifiers that did not permit matching to their 10th grade results. Others have left school or been retained in 10th grade although no good counts are available for these conditions.

In addition to analyzing the results, we examined factors relating to test accuracy, including a review of test equating procedures, the raw-to-scale score conversion tables, and analyses of the consistency with which the essays were scored. No significant issues were noted in any of these procedures.

Chapter 4: Evidence of the Effectiveness of Instruction for the Class of 2006

Introduction

The clearest evidence of the effectiveness of instruction in the CAHSEE standards is the performance of students on the CAHSEE itself. The reader is referred to Chapter 3 for a discussion of passing rates. In Chapter 4, we bring in evidence gathered through surveys and site visits to further inform the concept of instructional effectiveness.

Evidence from Surveys and Site Visit Interviews

Test results show which students are adequately prepared and pass the high school exit examination and which groups have lower passing rates. Evaluation surveys and site visits performed by the HumRRO team provide additional information regarding the current state of instruction, as well as its trajectory over time. Before presenting the evidence gathered through these channels, we present a description of the sample and analyses to determine how representative the respondent samples are of the state education system as a whole.

Survey and Interview Response Sample

Details of the sample selection, substitution policy, and data collection issues are provided in Appendix A. A brief summary of salient points is provided here.

Surveys

Table 4.1 details the response rates for each survey activity. This includes the requests for executive summaries to be written by district superintendents, as this activity was conducted in conjunction with the surveys. A description of each of the response rates and the representativeness of the responders follows the table.

Table 4.1. Survey Response Rates

Data Collection Instrument	Target Sample Size	Number of Respondents	Survey Response Rate/Other Notes
Districts	**467**	**123**	**26%**
Executive Summary		101	
ELA Curriculum Head		113	
Math Curriculum Head		114	
High Schools	**400**	**227**	**57%**
Principal		220	
ELA Curriculum Head		201	
Math Curriculum Head		211	
ELA Teacher		1,118	1–11 ELA teacher surveys per school
Math Teacher		1,129	1–12 Math teacher surveys per school
Feeder Schools	**97***	**39**	**40%**
Principal		37	
ELA Curriculum Head		33	
Math Curriculum Head		37	
ELA Teacher		196	1–10 ELA teacher surveys per school
Math Teacher		177	1–11 Math teacher surveys per school

*Note. Original middle school target was 200 schools but only 97 feeder schools were identified.

Districts. All 467 California school districts that include grade 10 were provided two surveys: one for an ELA curriculum head and one for a mathematics curriculum head. In addition, the district superintendent was asked to write a brief executive summary describing the district's efforts to ensure student and parent awareness of the CAHSEE requirement, curricular validity, instructional validity, and remediation. Twenty-six percent of the districts returned at least one survey and 22 percent of the districts provided an executive summary.

Table 4.2 compares the characteristics of the full set of eligible districts to those that responded to the request for surveys and executive summaries. From left to right, the first column of the table indicates the characteristic being compared (e.g., percentage of students who passed the ELA or mathematics portion of the 2004 CAHSEE, percentage of Hispanic or African American students, percentage of students that are English-language learners). The next two columns describe these subgroups within the full set of 2,208 high schools in the state. The next two columns indicate the comparable percentages within the responding districts. The final two columns provide a statistical analysis indicating whether the responding group differs in any statistically significant way from the sampled group. Bolded statistics indicate a significant difference.

Table 4.2. Sample Characteristics by Response Status (Districts)

School Characteristic	All High Schools (*n*=2,208) Mean Percentage	All High Schools S.D.	Responding Districts (*n*=126) Mean Percentage	Responding Districts S.D.	Effect Size	*t*-statistic
Student Demographics						
Hispanic Student Enrollment	41.05	26.48	36.50	22.67	-9.17	-1.10
African American (AA) Student Enrollment	8.12	10.37	5.94	6.35	-0.21	-1.35
Economically Disadvantaged (Econ) Student Enrollment	40.60	27.04	36.95	22.82	-0.13	-0.86
English-language Learner (EL) Student Enrollment	18.24	16.00	13.84	13.54	-0.28	-1.76
Special Education (SD) Student Enrollment	**9.26**	7.08	**12.39**	15.17	**0.44**	**2.83**
2004 CAHSEE Pass Rates: ELA						
Pass CAHSEE ELA (All Students)	72.92	16.84	71.23	18.38	-0.10	-0.64
Hispanic Pass ELA	64.61	16.44	60.72	19.02	-0.24	-1.52
AA Pass ELA	65.07	24.81	63.47	24.97	-0.06	-0.41
Econ Pass ELA	61.99	15.70	58.24	16.94	-0.24	-1.53
EL Pass ELA	37.80	20.10	32.85	16.67	-0.25	-1.58
SD Pass ELA	29.38	20.11	30.22	20.03	0.04	0.27
2004 CAHSEE Pass Rates: Math						
Pass CAHSEE Math (All Students)	71.79	18.23	69.45	20.54	-1.13	-0.82
Hispanic Pass Math	63.66	17.15	60.17	19.84	-0.20	-1.30
AA Pass Math	58.12	25.48	57.88	24.52	-0.01	-0.06
Econ Pass Math	62.75	17.25	59.19	19.79	-0.21	-1.32
EL Pass Math	48.69	22.78	46.04	21.55	-0.12	-0.74
SD Pass Math	28.78	19.64	30.29	20.92	0.08	0.49

Note. Statistically significant differences between the state and the respondent sample are highlighted in **bold**.

Inspection of Table 4.2 reveals only one statistically significant difference between the two groups. While 9.26 percent of high school students in the state were identified as special education students, 12.39 percent of students in the responding sample were so identified. Some other differences were not large enough to achieve statistical significance. For example, the respondent sample schools had lower percentages of Hispanic, African American, economically disadvantaged, and English learner students, and each of these groups had lower pass rates than their subgroups in the state as a whole. However, because none of these differences between the state and respondent sample—other than the percentage of students with disabilities—was

large enough to be statistically significant, the respondent group was generally reflective of the population's characteristics.

Schools. A sample of 400 high schools was selected to represent all the public high schools in California. The sampling design assured that the sample would match overall state distributions for academic performance (based on results from the 2004 10th Grade STAR ELA assessment), school size, and the percentage of English learners (EL). Responses were obtained from 227 of the 400 high schools (57%), after substitutions.

Surveys were provided to principals, ELA department chairs and teachers, and mathematics department chairs and teachers. Appendix B contains the survey instruments and Appendix E contains the frequency tables for the survey responses.

Table 4.3 shows the distribution of high schools participating in the survey relative to the targeted sample. High schools that provided at least one completed survey were counted as respondents for this analysis. The only statistically significant difference between the target and responding populations was a slightly inflated percentage of economically disadvantaged students who passed CAHSEE Math (65.64% among responding schools versus 62.75% across the state). As with the district surveys, the high school survey respondents were representative of the state as a whole.

The study design called for surveys of one feeder school for each of 200 of the high schools in the sample, but the project encountered difficulties in identifying appropriate feeder schools. Details are provided in Appendix A. In the end, surveys were issued to 97 middle schools. Completed surveys were received from 39 middle schools, a response rate of 40 percent.

At each feeder school, surveys were provided to the principal, ELA department head/lead teacher, mathematics department head/lead teacher, and multiple ELA and mathematics teachers. Appendix B contains the survey instruments and Appendix E contains the frequency tables for the survey responses.

Table 4.4 shows characteristics of the high schools for which middle-grade feeder school responses were obtained. According to statistical tests, the responding feeder schools represented high schools with student populations that mirrored the state as a whole.

Table 4.3. Sample High School Characteristics by Survey Response Status (High Schools)

School Characteristic	All High Schools (*n*=2,208) Mean Percentage	All High Schools (*n*=2,208) S.D.	Responding High Schools (*n*=227) Mean Percentage	Responding High Schools (*n*=227) S.D.	Effect Size	*t*-statistic
Student Demographics						
Hispanic Student Enrollment	41.05	26.48	40.93	26.34	0.00	-0.07
African American (AA) Student Enrollment	8.12	10.37	7.30	8.58	-0.08	-1.19
Economically Disadvantaged (Econ) Student Enrollment	40.60	27.04	41.42	26.93	0.03	0.46
English-language Learner (EL) Student Enrollment	18.24	16.00	18.13	16.33	-0.01	-0.10
Special Education (SD) Student Enrollment	9.26	7.08	8.95	4.70	-0.04	-0.66
2004 CAHSEE Pass Rates: ELA						
Pass CAHSEE ELA (All Students)	72.92	16.84	73.69	15.63	0.05	0.69
Hispanic Pass ELA	64.61	16.44	66.14	14.43	0.09	1.40
AA Pass ELA	65.07	24.81	65.66	22.70	0.02	0.36
Econ Pass ELA	61.99	15.70	63.64	13.59	0.11	1.58
EL Pass ELA	37.80	20.10	39.56	19.08	0.09	1.32
SD Pass ELA	29.38	20.11	28.99	20.01	-0.02	-0.29
2004 CAHSEE Pass Rates: Math						
Pass CAHSEE Math (All Students)	71.79	18.23	73.70	15.75	0.10	1.58
Hispanic Pass Math	63.66	17.15	65.58	14.84	0.11	1.69
AA Pass Math	58.12	25.48	59.13	23.21	0.04	0.60
Econ Pass Math	**62.75**	17.25	**65.64**	13.89	**0.17**	**2.52**
EL Pass Math	48.69	22.78	51.85	21.67	0.14	2.09
SD Pass Math	28.78	19.64	29.54	19.63	0.04	0.58

Note: Statistically significant differences between the state and the respondent sample are highlighted in **bold**.

Table 4.4. Sample High School Characteristics by Survey Response Status (Feeder Schools)

School Characteristic	All High Schools (*n*=2,208) Mean Percentage	All High Schools (*n*=2,208) S.D.	Responding Feeder Schools (*n*=41) Mean Percentage	Responding Feeder Schools (*n*=41) S.D.	Effect Size	*t*-statistic
Student Demographics						
Hispanic Student Enrollment	41.05	26.48	43.80	24.60	0.10	0.66
African American (AA) Student Enrollment	8.12	10.37	8.48	7.59	0.03	0.22
Economically Disadvantaged (Econ) Student Enrollment	40.60	27.04	45.35	27.77	0.18	1.12
English-language Learner (EL) Student Enrollment	18.24	16.00	20.64	17.01	0.15	0.96
Special Education (SD) Student Enrollment	9.26	7.08	8.61	2.52	-0.09	-0.59
2004 CAHSEE Pass Rates: ELA						
Pass CAHSEE ELA (All Students)	72.92	16.84	73.68	15.21	0.05	0.29
Hispanic Pass ELA	64.61	16.44	65.50	13.61	0.05	0.35
AA Pass ELA	65.07	24.81	67.54	18.35	0.10	0.64
Econ Pass ELA	61.99	15.70	63.67	12.83	0.11	0.69
EL Pass ELA	37.80	20.10	40.61	15.17	0.14	0.90
SD Pass ELA	29.38	20.11	29.16	16.98	-0.01	-0.07
2004 CAHSEE Pass Rates: Math						
Pass CAHSEE Math (All Students)	71.79	18.23	73.15	16.36	0.07	0.48
Hispanic Pass Math	63.66	17.15	64.51	14.13	0.05	0.32
AA Pass Math	58.12	25.48	62.18	18.55	0.16	1.02
Econ Pass Math	62.75	17.25	65.61	14.55	0.17	1.06
EL Pass Math	48.69	22.78	54.16	17.72	0.24	1.54
SD Pass Math	28.78	19.64	29.15	20.19	0.02	0.12

Note: Statistically significant differences between the state and the respondent sample are highlighted in **bold**.

Site Visit Interviews

Site visits were conducted at 47 high schools and 17 middle-grade feeder schools, resulting in 533 total interviews. Interview protocols are provided in Appendix C; summaries of interview responses can be found in Appendix F. Tables 4.5 and 4.6 indicate how representative participating site visit high schools and feeder middle schools, respectively, are. In both cases, the site visits were conducted in school systems that enrolled, on average, a larger percentage of African American students

than the statewide average. The statewide average high school African American enrollment is 8.12 percent. Site visits were conducted at high schools with an average of 11.59 percent. The sampled feeder schools were somewhat less representative in this regard; the 24 visited feeder schools fed into high schools with an average African American enrollment of 17.63 percent. Aside from this disparity, the characteristics of the schools that were visited were representative of the entire state's high school population.

Table 4.5. Sample High School Characteristics by Site Visit Participation Status (High Schools)

	All High Schools (*n*=2,208)		Visited High Schools (*n*=47)			
School Characteristic	Mean Percentage	S.D.	Mean Percentage	S.D.	Effect Size	*t*-statistic
Student Demographics						
Hispanic Student Enrollment	41.05	26.48	46.61	26.51	0.21	1.45
African American (AA) Student Enrollment	**8.12**	10.37	**11.59**	15.92	**0.33**	**2.32**
Economically Disadvantaged (Econ) Student Enrollment	40.60	27.04	48.96	29.61	0.31	2.14
English-language Learner (EL) Student Enrollment	18.24	16.00	21.58	17.07	0.21	1.45
Special Education (SD) Student Enrollment	9.26	7.08	8.51	3.61	-0.11	-0.73
2004 CAHSEE Pass Rates: ELA						
Pass CAHSEE ELA (All Students)	72.92	16.84	70.59	18.24	-0.14	-0.96
Hispanic Pass ELA	64.61	16.44	64.88	17.90	0.02	0.11
AA Pass ELA	65.07	24.81	64.04	20.37	-0.04	-0.29
Econ Pass ELA	61.99	15.70	62.62	16.28	0.04	0.28
EL Pass ELA	37.80	20.10	41.76	20.93	0.20	1.36
SD Pass ELA	29.38	20.11	26.62	23.48	-0.14	-0.95
2004 CAHSEE Pass Rates: Math						
Pass CAHSEE Math (All Students)	71.79	18.23	69.85	18.75	-0.11	-0.74
Hispanic Pass Math	63.66	17.15	64.10	17.80	0.03	0.18
AA Pass Math	58.12	25.48	56.06	20.20	-0.08	-0.56
Econ Pass Math	62.75	17.25	64.06	17.93	0.08	0.53
EL Pass Math	48.69	22.78	53.52	22.19	0.21	1.47
SD Pass Math	28.78	19.64	25.43	22.19	-0.17	-1.18

Note: Statistically significant differences between the state and the respondent sample are highlighted in **bold**.

Table 4.6. Sample High School Characteristics by Site Visit Participation Status (Middle Schools)

School Characteristic	All High Schools (*n*=2,208) Mean Percentage	All High Schools (*n*=2,208) S.D.	Visited Feeder Schools (*n*=18) Mean Percentage	Visited Feeder Schools (*n*=18) S.D.	Effect Size	*t*-statistic
Student Demographics						
Hispanic Student Enrollment	41.05	26.48	39.63	21.16	-0.05	-0.23
African American (AA) Student Enrollment	**8.12**	10.37	**17.63**	21.58	**0.92**	**3.89**
Economically Disadvantaged (Econ) Student Enrollment	40.60	27.04	45.38	29.64	0.18	0.75
English-language Learner (EL) Student Enrollment	18.24	16.00	16.91	14.64	-0.08	-0.35
Special Education (SD) Student Enrollment	9.26	7.08	8.64	3.55	-0.09	-0.37
2004 CAHSEE Pass Rates: ELA						
Pass CAHSEE ELA (All Students)	72.92	16.84	68.26	20.39	-0.28	-1.17
Hispanic Pass ELA	64.61	16.44	61.53	19.49	-0.19	-0.79
AA Pass ELA	65.07	24.81	61.94	21.75	-0.13	-0.54
Econ Pass ELA	61.99	15.70	61.03	18.63	-0.06	-0.26
EL Pass ELA	37.80	20.10	39.24	20.24	0.07	0.30
SD Pass ELA	29.38	20.11	26.27	17.48	-0.15	-0.66
2004 CAHSEE Pass Rates: Math						
Pass CAHSEE Math (All Students)	71.79	18.23	66.36	21.79	-0.30	-1.26
Hispanic Pass Math	63.66	17.15	59.41	20.49	-0.25	-1.05
AA Pass Math	58.12	25.48	57.36	21.49	-0.03	-0.13
Econ Pass Math	62.75	17.25	60.30	21.18	-0.14	-0.60
EL Pass Math	48.69	22.78	51.58	24.36	0.13	0.54
SD Pass Math	28.78	19.64	27.14	23.34	-0.08	-0.35

Note: Statistically significant differences between the state and the respondent sample are highlighted in **bold**.

Table 4.7 and Table 4.8 present the number and type of interviews conducted at feeder schools and high schools. Interview totals varied between schools with as few as three, and as many as 19 interviews conducted at a single school. This was largely based on the size of the school. We note that in some cases the interviews were conducted with more than one teacher present. We counted these as single interviews.

Table 4.7. Number and Type of Interviews at Individual Feeder Schools

	Number and Type of Interview					
School ID	Administrator	General Math or English	Special Education	English Learner	Remedial or Preparatory Courses	Other
03f	1	3	0	1	0	0
05f	1	5	1	1	0	0
07f	1	4	1	1	0	0
08f	1	4	1	0	0	0
09f	0	5	0	0	0	0
10f	1	3	0	1	1	0
16f	0	2	1	0	0	0
24f	1	4	1	1	0	0
29f	1	3	0	0	0	0
30f	2	5	1	1	2	0
31f	1	2	0	1	0	0
35f	1	5	1	1	0	0
36f	1	4	1	2	0	0
37f	1	4	1	0	0	0
41f	1	4	1	2	0	0
48f	1	3	1	0	0	0
50f	1	4	1	3	0	0
TOTAL	16	64	12	15	03	0

Table 4.8. Number and Type of Interviews at Individual High Schools

	Number and Type of Interview					
School ID	Administrator	General Math or English	Special Education	English Learner	Remedial or Preparation courses	Other
01	1	3	1	1	0	3
02	1	3	2	1	0	0
03	1	5	1	3	0	0
04	1	2	1	1	0	0
05	1	4	2	1	0	0
06	0	5	2	1	4	0
07	1	6	0	1	0	0
08	2	3	1	0	0	0
09	1	4	1	1	1	0
10	1	3	1	0	0	0
12	1	4	1	3	0	0
13	4	11	3	1	0	0
14	0	3	3	2	1	0
15	1	4	2	1	0	0
16	1	3	1	0	1	1
17	2	3	1	1	0	1
18	0	3	2	2	1	0
20	1	4	2	2	1	0
21	3	2	1	0	0	0
22	0	4	0	2	1	0
23	2	2	0	1	0	0
24	1	3	1	1	1	0
25	1	4	0	0	0	0
26	1	8	3	2	1	1

	Number and Type of Interview					
School ID	Administrator	General Math or English	Special Education	English Learner	Remedial or Preparation courses	Other
27	0	4	0	0	2	0
28	3	3	3	3	0	0
29	1	4	2	1	1	1
30	2	2	1	1	0	0
31	1	4	1	0	1	0
32	2	2	2	2	0	0
33	1	5	3	2	0	0
35	1	6	3	1	2	1
36	1	5	3	1	2	0
37	1	11	1	1	0	0
38	1	3	1	1	0	0
39	0	8	2	1	0	0
40	1	3	1	0	1	0
41	1	5	1	1	3	0
42	2	7	1	1	0	0
43	1	3	2	2	2	0
44	1	8	2	2	0	0
47	1	3	1	0	1	0
48	4	3	0	0	0	0
49	1	3	2	1	1	0
50	1	4	0	0	0	0
51	6	4	1	1	2	0
52	3	10	1	2	1	0
TOTALS	64	206	66	52	30	08

Combining Survey and Interview Data with School Characteristics

Each high school within the sample was classified by several characteristics of its student population. Each characteristic was divided empirically into three ordinal groupings and each high school was subsequently assigned to one and only one category for each characteristic. Table 4.9 presents the cut points and distribution of school classifications based on characteristics of the student populations. Each characteristic was divided into three categories such that approximately 25 percent of schools were categorized as small, 50 percent medium, and 25 percent large. These groupings will be used later in this and subsequent chapters to compare survey and interview responses across different types of schools.

Table 4.9. Empirical Classifications of High Schools into Categories: Demographic Distributions

Category	Classifications	N	% of Sample
Number of Students in Class of 2006 (*n*=247)			
	Small (< 450)	69	27.9
	Medium (450–700)	114	46.2
	Large (> 700)	64	25.9
Percentage of EL Students (*n*=247)			
	Small (<= 6%)	64	25.9
	Medium (>6–27%)	121	49.0
	Large (> 27%)	62	25.1
Percentage of SD Students (*n*=247)			
	Small (<= 7%)	60	24.3
	Medium (>7–10%)	116	47.0
	Large (> 10%)	71	28.7
Percentage of Economically Disadvantaged Students (*n*=247)			
	Small (<= 20%)	64	25.9
	Medium (>20–60%)	119	48.2
	Large (> 60%)	64	25.9
Percentage of Hispanic Students (*n*=247)			
	Small (<= 20%)	65	26.3
	Medium (>20–60%)	117	47.4
	Large (> 60%)	65	26.3
Percentage of African American Students (*n*=247)			
	Small (<= 4%)	115	46.6
	Medium (>4–12%)	81	32.8
	Large (> 12%)	51	20.6

Note. Category cut points for percentage of African American students were adjusted due to distribution skew. The larger "small" category facilitates sufficient reporting of small n's in Chapter 3.

Factors that Limit the Effectiveness of Current Instruction

Student Preparation

Student Preparation—Site Visits. Interviewers asked a series of questions about current preparation of incoming students compared to two years ago. Four of the five interview protocols contained these questions; they were omitted from the special courses protocol.

About 25 percent of the general education math and English-language arts teachers reported seeing better student preparation; about 13 percent reported students being less prepared, compared to two years ago. This question was omitted if interviewers used the short interview form, thus accounting for the large number of blank responses, about 49 percent of the total.

Most administrators (75%) reported that their schools currently rated at the high end of the scale with either a four or five. No administrators reported a decline in

implementation over the 2-year period; 11 said they were unable to answer as they had not been in the same school or position two years prior.

Thirty percent of the special education teachers indicated that the incoming students were better prepared, due in part to improved skills from better preparation in earlier grades. On the other hand, 15 percent of the teachers stated incoming students were less prepared than two years ago because of a wider scope and severity of their disabilities.

EL teachers, on the other hand, were evenly split between students being more, or less, prepared. Again, those who felt they were better prepared indicated that improved skill development in earlier grades could be a factor. Interestingly, a couple of comments were received from teachers indicating that of the students who were less prepared, the teachers observed that new students (immigrants) were better prepared than incoming students from feeder schools. Other respondents stated that they felt that the incoming immigrant students are less educated than those from previous years.

Interviewers then asked respondents for a 1-to-5 rating of incoming student preparation, using a Likert-type scale. A 1 represented “very poorly prepared,” a 5 represented ”very well prepared.” Respondents were asked for two ratings, one for the current year’s incoming students and one that asked them to think back two years ago for incoming student preparation. Table 4.10 shows that respondents generally believe student preparation has increased slightly.

Table 4.10. Ratings of Student Preparation by Interview Type, Current v. 2 Years Ago on a Scale of 1(lowest) to 5 (best)

	Mean-Current Year	Mean-2 Years Ago	Mean Difference
Gen math/ELA HS	2.8 (n=196)	2.6 (n=164)	0.3 (n=162)
Gen math/ELA FS	3.2 (n=62)	2.6 (n=50)	0.6 (n=49)
Admin High School	3.1 (n=57)	2.5 (n=47)	0.6 (n=47)
Admin Feeder School	3.1 (n=16)	2.3 (n=16)	0.8 (n=16)
Sp Ed HS	2.7 (n=64)	2.2 (n=54)	0.5 (n=54)
Sp Ed FS	2.8 (n=12)	2.0 (n=12)	0.7 (n=11)
EL HS	2.8 (n=45)	2.5 (n=36)	0.3 (n=36)
EL FS	2.7 (n=13)	2.5 (n=12)	0.2 (n=12)

Student Preparation—Surveys. The teacher survey asked teachers to respond for a specific course or instructional program that the department chair or lead teacher has identified as having content related to curriculum standards covered on the CAHSEE. Teachers were asked how they would describe the preparation of students who are taking this course or instructional program. Figure 4.1 reveals that math teachers indicate less student preparedness than do ELA teachers. Only 10 percent of math teachers and 20 percent of ELA teachers judge that almost all students are well prepared to succeed.

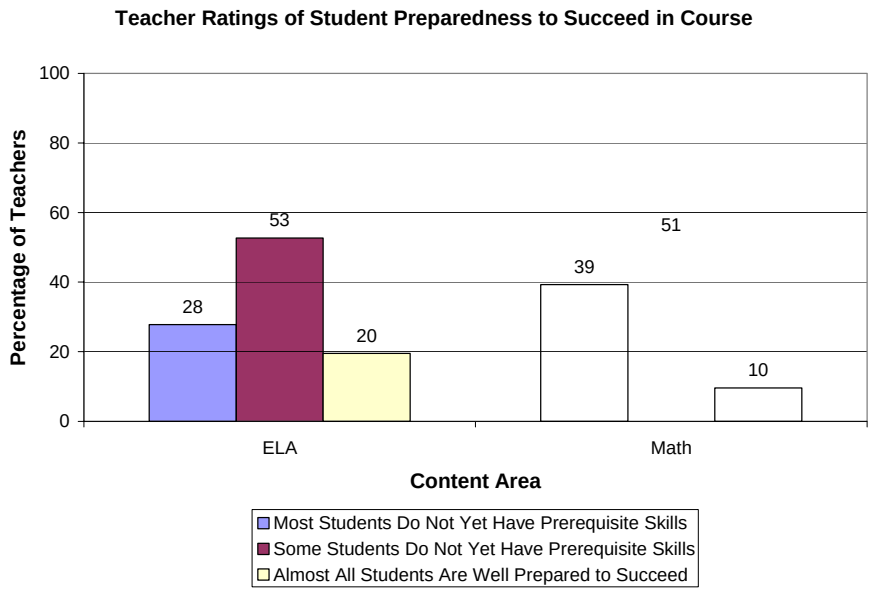


Figure 4.1. Percentage of teachers indicating student preparedness for success in course.

We also analyzed this question separately for schools with high concentrations of at-risk students, as defined by the student characteristic groupings described earlier. Since multiple teachers returned surveys for each school, we averaged teacher estimates so that each school was counted only once in this analysis. Table 4.11 details teacher ratings of student preparedness. Percentages indicate the percentage of schools in which the average teacher response indicated some or most students have the prerequisite skills.

Inspection of Table 4.11 indicates some perceived discrepancies between schools with relatively large proportions of at-risk students. For example, ELA teachers in 74.5 percent of schools with high concentrations of EL students rated some/most students as prepared, as compared to 90.1 percent of teachers in schools without high concentrations of EL students. In ELA, teachers rated students as less prepared in schools with high concentrations of EL, economically disadvantaged, and Hispanic students, but more prepared in schools with high concentrations of African American students. In math, teachers rated students as less prepared in schools with high concentrations of EL, economically disadvantaged, Hispanic, and African American students. In both ELA and math, teachers rated students as more prepared in schools with high concentrations of SD students.

Table 4.11. Ratings of Student Preparedness in Schools with High Concentrations of At-risk Students, According to Teachers

Student Demographic Subgroup	School Group	Number of Responding Schools in High/Not High Group	Percentage of Schools in Which Some/Almost All Student Have Prerequisite Skills
ELA			
EL Students	Not High	152	90.1%
	High (> 27%)	47	74.5%
SD Students	Not High	138	85.5%
	High (>10%)	61	88.5%
Economically Disadvantaged Students	Not High	152	90.8%
	High (>60%)	47	72.3%
Hispanic Students	Not High	147	92.5%
	High (>60%)	52	69.2%
African American Students	Not High	163	85.9%
	High (>12%)	36	88.9%
Math			
EL Students	Not High	150	76.7%
	High (> 27%)	46	69.6%
SD Students	Not High	137	73.7%
	High (>10%)	59	78.0%
Economically Disadvantaged Students	Not High	151	79.5%
	High (>60%)	45	60.0%
Hispanic Students	Not High	144	78.5%
	High (>60%)	52	65.4%
African American Students	Not High	159	77.4%
	High (>12%)	37	64.9%

The teacher survey also asked what proportion of their students achieved at least *Basic* performance on the previous year's corresponding Standardized Testing and Reporting (STAR) California Standards Test (CST). Table 4.12 reveals that over a third of teachers do not know their students' incoming performance and only a small percentage indicate that most students achieved at least *Basic* performance.

Table 4.12. Proportion of Students Who Achieved At Least Basic Performance on Previous Year's STAR CST, According to High School Teachers

Teacher Response	Subject Area		Total
	ELA (*n*=1,162)	Mathematics (*n*=1,099)	
Not Sure	32.9	43.8	38.2
Only a Few (Less than 25%)	18.7	26.3	22.4
Some (25%–74%)	27.1	23.2	25.2
Most (75%–90%)	14.0	4.1	9.2
Nearly All (More than 90%)	7.3	2.6	5.0
Total	100.0	100.0	100.0

Teacher Qualifications and Experience

Teacher Qualifications and Experience—Site Visits. Although the interview protocols did not specifically address the issue of teacher qualifications and experience, they did address the issue of professional development. Two questions on the general education math and English protocols asked how often general education math and English teachers are required to take professional development training related to the needs of special education and EL students, respectively. Related questions on the special education and EL protocols also asked those teachers how often general education teachers had to take training on the needs of special education and EL students.

Researchers found that, in the general education responses, most answers were clustered among four categories: (a) they did not know of any professional development requirement related to the populations in question (16% of the total responses for both special education and EL), (b) such training was not required (42% special education, 32% EL), (c) it was covered through the teacher certification process (17% special education, 31% EL), or (d) such training was required annually (10% special education, 6% EL). We note that even though some respondents stated that such training was not required, they said it was nonetheless covered in staff meetings or through collegial conversations.

The rather large difference between percentages of teachers who state that special education training is covered in the certification process versus those who state that EL training is covered during certification (17% and 31%, respectively) can at least partially be explained by the fact that CLAD (Cross-cultural Language and Academic Development) training is required in many districts and schools, especially among newer teachers. In fact, 78 of 270 general education teachers mentioned CLAD training, although they were not specifically asked about it. We include the following typical comments:

- The district has a requirement that all teachers must become CLAD certified.
- They do require new teachers to have a CLAD credential.

These findings are echoed from the special education and EL teacher interviews. In general, teachers involved with special education students or EL students are credentialed. Most, however, were unsure about any mandated professional development for regular education teachers other than the certification process. It should be noted that nearly half of the special education teachers are involved, in some way, with the professional development sessions on special education that are presented to general education teachers. The type of involvement often is presenting information more informally at staff meetings; however, there were several who stated they organize (obtain guest speakers or form parent/teacher panels) segments on special education issues at school professional development or in-service training sessions. Only about a quarter of the EL teachers are involved in the professional development sessions for the general education teachers.

Teacher Qualifications and Experience—Surveys. High School ELA and mathematics department heads were asked to characterize the credential status of teachers in their departments. Table 4.13 indicates the proportions of teachers working with an appropriate ELA or mathematics credential. In both subject areas, approximately three-quarters of schools are operating with nearly all credentialed teachers, but 12 percent of responding ELA departments and 8 percent of responding mathematics departments are operating with more than 25 percent teachers who do not have appropriate credentials.

Table 4.13. Percentage of Schools with ELA and Mathematics Teachers Working With an Appropriate Credential, According to High School Department Head

Proportion of Teachers with Appropriate Credential	Subject Area	
	ELA (n=187)	Mathematics (n=202)
Nearly All (More than 90%)	75.4	72.3
Most (75%–90%)	12.3	19.8
Some (25%–74%)	8.0	5.9
Only a Few (Less than 25%)	3.7	1.5
None	0.5	0.5
Total	100.0	100.0

These responses were compared to the proportions of various categories of at-risk student populations to assess how teacher credentialing might differ systematically across schools. Table 4.14 reports the percentage of responders who indicated that at least three-quarters of their ELA and mathematics teachers were certified in their subject area (i.e., ratings of most or nearly all), separately for schools with high concentrations of Hispanic, African American, economically disadvantaged, EL, and SD students.

Table 4.14. Teacher Credentialing in Schools with High Concentrations of At-risk Students, According to High School Department Head

Student Demographic Subgroup	School Group	Number of Responding Schools in High/Not High Group	Percentage of Schools with at Least 75% Teachers Holding Subject-Area Credential
ELA			
EL Students	Not High	137	85.4%
	High (> 27%)	43	93.0%
SD Students	Not High	128	85.2%
	High (>10%)	52	92.3%
Economically Disadvantaged Students	Not High	141	85.8%
	High (>60%)	39	92.3%
Hispanic Students	Not High	135	86.7%
	High (>60%)	45	88.9%
African American Students	Not High	148	89.2%
	High (>12%)	32	78.1%
Math			
EL Students	Not High	147	93.2%
	High (> 27%)	46	89.1%
SD Students	Not High	138	91.3%
	High (>10%)	55	94.5%
Economically Disadvantaged Students	Not High	148	94.6%
	High (>60%)	45	84.4%
Hispanic Students	Not High	142	93.0%
	High (>60%)	51	90.2%
African American Students	Not High	158	93.7%
	High (>12%)	35	85.7%

Inspection of Table 4.14 reveals that ELA credentialing is higher in schools with high concentrations of EL, SD, economically disadvantaged, and Hispanic students than in schools without such high concentrations of at-risk students. The exception is schools with relatively high concentrations of African American students. Among schools serving 12 percent or more African American students (i.e., the highest 20% of schools along this dimension), 78.1 percent report that most teachers hold ELA credentials, compared to 89.2 percent of schools with smaller proportions of African American students. Math credentialing follows a different pattern. Schools serving more than ten percent of students with disabilities (i.e., the highest 25% of schools along this dimension), report that 94.5 percent of their math teachers hold subject-area credentials, compared to 91.3% of schools with smaller proportions of SD students. However, lower percentages of schools with high concentrations of EL, economically disadvantaged, Hispanic, and

African American students report math teachers with subject-area credentials than do schools without such high concentrations of at-risk students.

The above responses were based on department chair estimates of teacher credentials across the entire department. On the teacher survey—which was administered to a subset of teachers within each school—we also asked each teacher to write in his or her specific teaching credential(s). These responses were tallied and frequencies of responses are reported in Table 4.15.

Table 4.15. Rates of High School Teaching Credentials, According to Teachers Surveyed

Teaching Credentials	Percentage (n=2,381)
Single Subject (ELA & Math)	63.25
Professional Clear	23.77
CLAD	17.60
Single Subject Other	13.44
Standard Secondary	8.44
Multiple Subject	7.69
Preliminary Credential	5.63
Life Credential	5.17
Math Supplemental	4.83
Other Supplemental	4.03
Special Education	3.23
Intern	2.81
Ryan	2.06
English Supplemental	1.93
Emergency	1.89
BCLAD	1.72
Learning Handicap	1.64
English Learner	0.92
Bilingual Bicultural	0.67
Standard Elementary	0.67
SDAIE	0.50
Not Credentialed	0.21

Note. Frequencies do not total to 100 percent as individual teachers may hold multiple credentials.

The majority of the teachers have a Single Subject Credential in either English Language Arts or Mathematics. Non-credentialed teachers accounted for less than one percent of the respondent teacher population. Since teachers were permitted to indicate multiple credentials the frequencies total to more than 100 percent.

Table 4.16 indicates the proportions of teachers who are either working with emergency credentials or are district interns, according to surveyed department chairs.

Over 90 percent of ELA and math departments had only a few (or no) cases of emergency credentials. ELA credentialing was more variable than mathematics among the surveyed schools. While 62 percent of department heads reported that none of their ELA teachers had emergency credentials, two percent indicated that nearly all teachers did. No math departments reported more than 75 percent emergency credentials.

Table 4.16. Percentage of Schools with ELA and Mathematics Teachers Who Are Working With Emergency Credentials or Are District Interns, According to High School Department Head

Proportion of Teachers with Emergency Credential or District Interns	Subject Area	
	ELA (n=187)	Mathematics (n=199)
Nearly All (More than 90%)	2.1	0.0
Most (75%–90%)	0.0	0.0
Some (25%–74%)	2.1	7.5
Only a Few (Less than 25%)	34.2	45.2
None	61.5	47.2
Total	100.0	100.0

The responses summarized in Table 4.16 were compared to the proportions of various categories of at-risk student populations to assess how teacher credentialing might differ systematically across schools. Table 4.17 reports the percentage of responders who indicated that none of their ELA or mathematics teachers held emergency credentials or were interns. Responses are listed separately for schools with high concentrations of Hispanic, African American, economically disadvantaged, EL, and SD students. In every case, a larger percentage of schools with high concentrations of at-risk students employ some teachers with emergency credentials or interns.

Table 4.17. Emergency Credentialing in Schools with Not High or High Concentrations of At-risk Students, According to High School Department Head

Student Demographic Subgroup	School Group	Number of Responding Schools in Not High/ High Group	Percentage of Schools with No Teachers Holding Emergency Credential
ELA			
EL Students	Not High	138	67.4%
	High (> 27%)	42	45.2%
SD Students	Not High	128	66.4%
	High (>10%)	52	51.9%
Economically Disadvantaged Students	Not High	142	68.3%
	High (>60%)	38	39.5%
Hispanic Students	Not High	138	65.9%
	High (>60%)	42	50.0%
African American Students	Not High	148	66.2%
	High (>12%)	32	43.8%
Math			
EL Students	Not High	146	50.7%
	High (> 27%)	44	34.1%
SD Students	Not High	136	48.5%
	High (>10%)	54	42.6%
Economically Disadvantaged Students	Not High	147	53.1%
	High (>60%)	43	25.6%
Hispanic Students	Not High	141	53.9%
	High (>60%)	49	26.5%
African American Students	Not High	155	49.7%
	High (>12%)	35	34.3%

District ELA and mathematics curriculum heads were asked to estimate the percentage of grade 6–10 students in various categories who receive instruction from teachers with an appropriate credential. Figures 4.2 and 4.3 indicate the responses for ELA and mathematics, respectively. A few patterns are notable. First, according to district curriculum heads, more students receive ELA instruction from credentialed teachers than math instruction. Second, EL students are assigned to credentialed teachers at about the same rate as the student population as a whole. Third, students with disabilities, whether characterized as receiving special education services or as having an Individualized Education Program (IEP), are more likely than the general population to receive ELA and Math instruction from a teacher who does not hold an appropriate subject-specific credential.

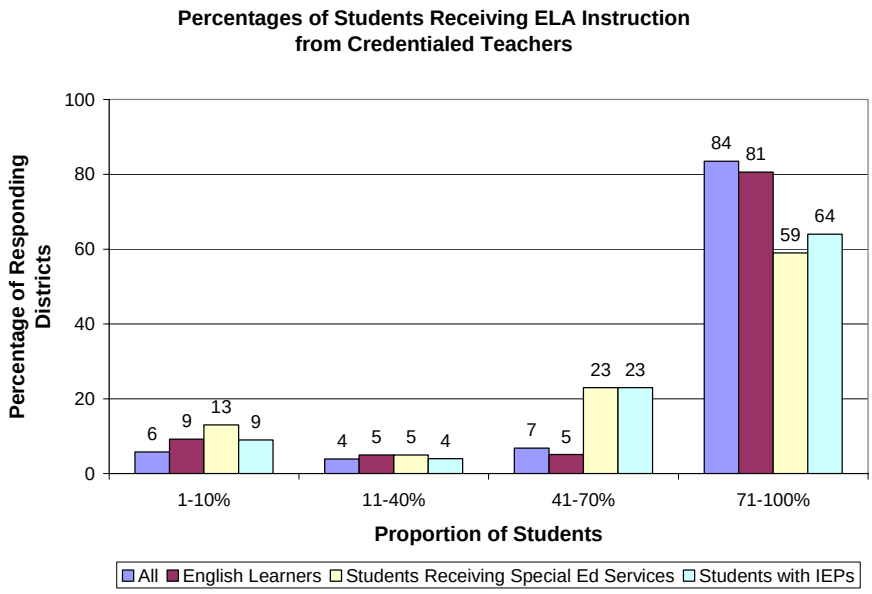


Figure 4.2. Proportions of students receiving ELA instruction from credentialed teachers, according to district ELA curriculum heads (n=98).

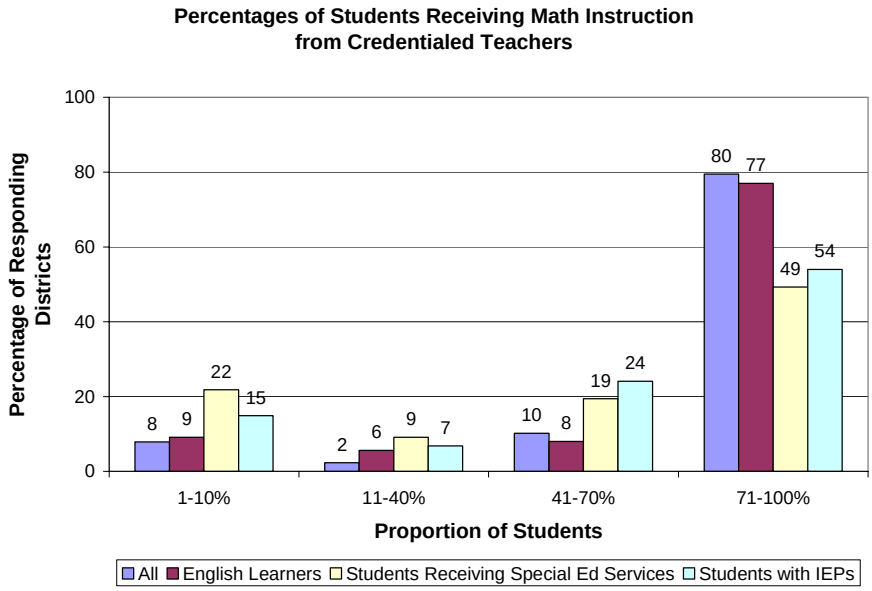


Figure 4.3. Proportions of students receiving mathematics instruction from credentialed teachers, according to district ELA curriculum heads (n=87).

High school department heads were asked to estimate the experience levels of teachers responsible for primary/supplemental courses versus basic/intervention programs. Figures 4.4 and 4.5 depict their responses for ELA and mathematics, respectively. In both subject areas, respondents indicated that less experienced teachers were teaching basic and intervention courses.

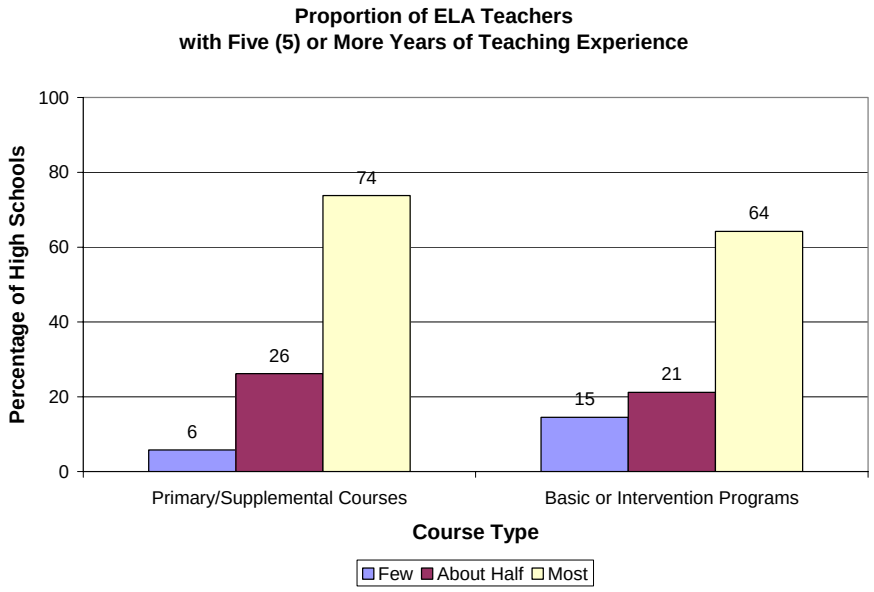


Figure 4.4. Proportion of high school ELA teachers with five (5) or more years of teaching experience, according to department head (n=179).

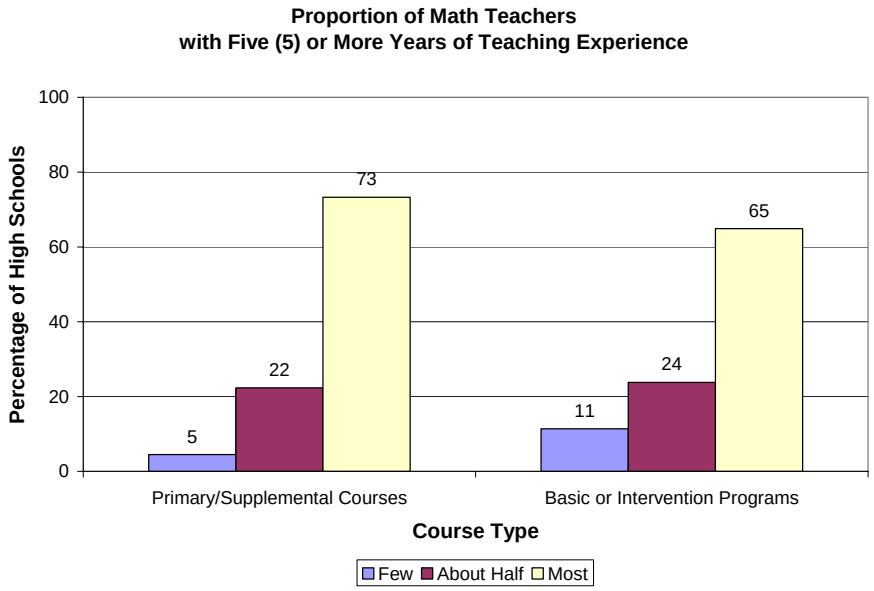


Figure 4.5. Proportion of high school math teachers with five (5) or more years of teaching experience, according to department head (n=185).

Table 4.18 breaks down these same responses separately for schools with high and moderate/low concentrations of at-risk students. Percentages in this table indicate the percentage of schools that indicated “most” teachers have five or more years of teaching experience. In every student demographic category, in both ELA and mathematics, and for both primary/supplemental and basic/intervention courses, a smaller percentage of schools with relatively high concentrations of at-risk students report most teachers have at least five years of experience.

Table 4.18. Teacher Experience in Schools with Not High or High Concentrations of At-risk Students, According to High School Department Head

Student Demographic Subgroup	School Group	Number of Responding Schools in Not High/High Group*	Percentage of Schools in Which "Most" Teachers Have Five or More Years of Teaching Experience	
			Primary or Supplemental Courses	Basic or Intervention Courses
ELA				
EL Students	Not High	141/129	79.4%	68.2%
	High (> 27%)	43	55.8%	51.2%
SD Students	Not High	129/120	75.2%	68.3%
	High (>10%)	55/52	70.9%	53.8%
Economically Disadvantaged Students	Not High	144/132	81.3%	69.7%
	High (>60%)	40	47.5%	45.0%
Hispanic Students	Not High	138/127	79.7%	70.1%
	High (>60%)	46/45	56.5%	46.7%
African American Students	Not High	151/143	76.2%	67.1%
	High (>10%)	33/29	63.6%	48.3%
Math				
EL Students	Not High	147/135	79.6%	67.4%
	High (> 27%)	46/42	52.2%	54.8%
SD Students	Not High	139/126	74.1%	65.9%
	High (>10%)	54/51	70.4%	60.8%
Economically Disadvantaged Students	Not High	149/135	79.9%	67.4%
	High (>60%)	44/42	50.0%	54.8%
Hispanic Students	Not High	141/130	80.9%	70.0%
	High (>60%)	52/47	51.9%	48.9%
African American Students	Not High	157/142	75.8%	68.3%
	High (>10%)	36/35	61.1%	48.6%

*Note. Where two numbers appear (e.g., 141/129) a different number of respondents answered the questions with respect to primary/supplemental courses and basic/intervention courses. Percentages in each case are based upon the responding sample.

Student Motivation

Student Motivation—Site Visits. Two series of questions on the general education math and English-language arts protocol asked teachers about student motivation. The first question in the series asked teachers to predict whether the implementation of the CAHSEE graduation requirement will have an impact on general education students and student subpopulations. As these questions were omitted on the short interview forms, response rates were not as high as on other questions, with 49 percent blank responses on the general student population question and 52 percent

blank responses on the student subpopulation question. For the general student population, 37 percent of teachers predicted that student motivation would change, compared to 33 percent of teachers answering for the student subpopulations at their school. Negative responses, in the sense that no changes in student motivation would be seen, were even closer, with 11 percent answering for the general student population and 10 percent answering for the student subpopulations.

Interviewers then asked those who predicted a change to describe the anticipated changes. Researchers discovered a continuum of responses ranging from positive (trying harder or more focused) to negative (increased anxiety or dropping out). Positive responses for the general student population question totaled 66 percent, compared to the student subpopulation of 54 percent. We note, however, that respondents were free to give multiple answers, so these percentages are based on the number of responses given per category, divided by the number of respondents and thus will not total 100 percent. The negative responses totaled 26 percent (general population) versus 33 percent (student subpopulation). An interesting category included in the positive responses was one called “motivation by example.” Respondents stated that younger students would see older students not passing the CAHSEE and not earning a diploma; these younger students would see that CAHSEE was to be taken seriously and would be more motivated to pass it. This category accounted for 10 percent of responses for general student population and 9 percent of responses for subpopulations.

We also asked administrators and special courses teachers to predict whether or not there would be a change in student motivation based on the implementation of CAHSEE as a graduation requirement. Only 33 percent of administrators responded to this question. Of those who responded, 58 percent saw positive change. Thirty-one percent of administrators saw no change, and 31 percent of that group felt that student motivation and attitude were positive and therefore required no change. Administrators were closely split when asked to predict whether CAHSEE implementation will affect student motivation in their subpopulations; 38 percent said yes, while 27 percent said no. Of those who said yes, 10 percent predicted positive change and 14 percent predicted negative change. When special courses instructors were asked, 66 percent predicted changes. Of that group, 54 percent foresaw positive change, 23 percent reported neutral change, and another 23 percent reported negative change.

Of the 70 special education teachers who responded to this question, 58 stated they felt student motivation or attitudes would change; only 21 stated that change would be positive (e.g., students would try harder, be more serious). More than 50 percent of the teachers (40) stated that the change would be negative in nature or that students will just give up or quit. Often teachers stated that the students should be allowed the same type of accommodations they usually have, as stated in their IEP. One teacher stated that there is frustration because CAHSEE doesn’t measure other areas of giftedness, like mechanical skill; that their students will not graduate because they struggle in either math or English and that just doesn’t feel right. Teachers stated that schools might be able to respond to these attitudinal changes by implementing new

classes focused on the remediation of special education students, increasing parental involvement through special programs and classes, and reducing class size.

EL teachers were more in line with the general math and English teachers and administrators with nearly two-thirds of the teachers indicating there would be a change in student motivation and attitude and that two-thirds of those feel that change would be positive. Many comments indicated that students would be more serious and give more effort to pass the test. The most common way teachers recommended to provide more assistance to the students is through the addition of more classes and tutoring opportunities, more incentive programs, and greater parental involvement.

Student Motivation—Surveys. Teachers were asked to indicate the extent to which various factors limit the effectiveness of their courses. Figure 4.6 indicates the percentage of teachers who rated the factor as limiting effectiveness to a *great* or *very great extent* (on a 5-point scale). Low student motivation was most frequently noted as an impediment, followed by low parental support and low student attendance. Fewer teachers noted a lack of materials/resources, or their own difficulty in engaging students or their own lack of knowledge or experience.

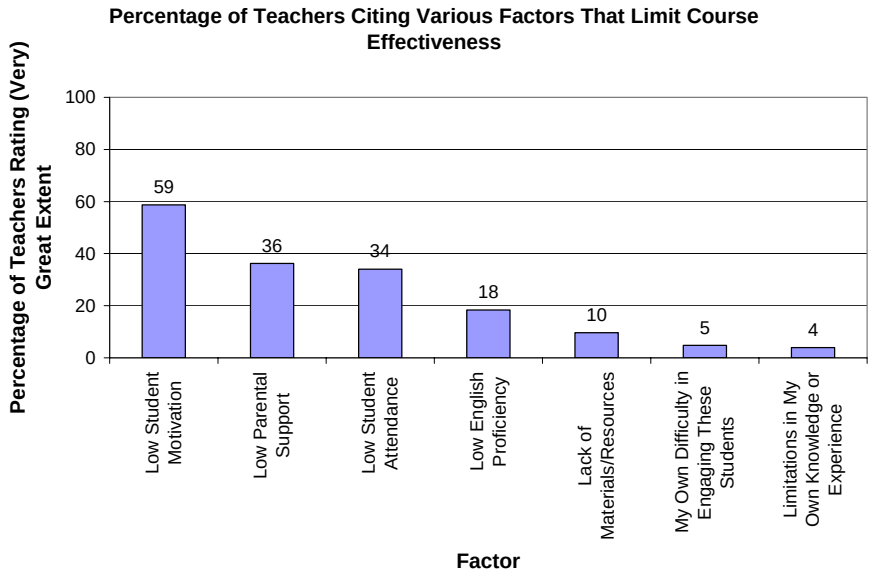


Figure 4.6. Factors that teachers indicate limit course effectiveness to a great or very great extent.

In order to determine whether these problems were more prevalent in some courses than others, in Table 4.19 we disaggregate these same responses by type of course (e.g., primary course, elective course targeted to remediation). Columns are ordered such that the leftmost columns have, on average, the lowest ratings of impediments. The rightmost two courses are both remedial courses; these are the courses that teachers indicate face the greatest limitations. In particular, teacher ratings of problems with student motivation, parental support, and student attendance are higher for remedial courses than for other courses. Low parental support is rated as a

greater problem for required supplemental courses targeted to remediation than for any other course type.

Table 4.19. Percentage of Teachers Citing Factors That Limit Course Effectiveness to a (Very) Great Extent, by Course Type

Limiting Factor	Type of Course					Total
	Elective Course Open to All Students (*n*=42)	Primary Course Open to All Students (*n*=1,559)	Required Alternative to Primary Course (*n*=337)	Elective Remedial Course (*n*=134)	Required Supplemental Remedial Course (*n*=197)	
Low Student Motivation	40.5	54.3	60.0	69.1	69.6	58.7
Low Parental Support	30.9	32.2	38.2	36.9	43.0	36.2
Low Student Attendance	26.9	30.0	35.9	38.7	38.7	34.0
Low English Proficiency	11.9	13.1	23.2	18.5	25.2	18.4
Lack of Materials/Resources	7.1	9.1	9.9	15.2	7.0	9.7
My Own Difficulty in Engaging These Students	2.4	3.2	7.0	5.3	5.9	4.8
Limitations in My Own Knowledge or Experience	2.4	1.8	2.8	9.1	3.7	4.0
Total	17.4	20.5	25.3	27.5	27.6	

Table 4.20 breaks down the three most frequently cited factors—student motivation, low parental support, and low student attendance—separately for schools with high and moderate/low concentrations of at-risk students. Percentages in this table indicate the percentage of teachers that indicated a factor limited course effectiveness to a great or very great extent. In every student demographic category, for all three factors, a larger percentage of teachers in schools with relatively high concentrations of at-risk students rate these factors as impediments. To facilitate interpretation, discrepancies between schools with high and moderate/low concentrations in excess of ten percentage points are presented in boldface. The largest differences are for parental support.

Table 4.20. Percentage of Teachers Citing Top Three Factors That Limit Course Effectiveness in Schools with High Concentrations of At-risk Students

Student Demographic Subgroup	School Group	Number of Responding Schools in High/Not High Group*	Percentage of Teachers Rating Factors as Limiting Course Effectiveness to a (Very) Great Extent		
			Low Student Motivation	Low Parental Support	Low Student Attendance
EL Students	Not High	1662–1700	55.0%	**30.1%**	30.0%
	High (> 27%)	540–551	63.3%	**46.9%**	37.4%
SD Students	Not High	1542–1574	55.2%	**31.3%**	29.5%
	High (>10%)	660–677	61.3%	**41.1%**	37.2%
Economically Disadv. Students	Not High	1691–1728	55.7%	**30.3%**	30.0%
	High (>60%)	511–523	61.4%	**47.2%**	37.7%
Hispanic Students	Not High	1637–1678	**54.1%**	**30.5%**	29.4%
	High (>60%)	565–573	**65.6%**	**45.1%**	38.8%
African American Students	Not High	1772–1815	56.2%	32.4%	30.9%
	High (>12%)	430–436	60.6%	41.6%	35.6%

*Note. Where two numbers appear (e.g., 1662–1700) a different number of respondents answered the questions with respect to student motivation, parental support, and student attendance. Percentages in each case are based upon the responding sample for that survey question.

Note. Differences in excess of 10 percentage points are **bolded**.

Parental Support

Parental Support—Site Visits. Parental support developed as a theme that, while not asked about specifically, nonetheless arose in several questions in the five educator protocols. (Parents were not interviewed.) There were numerous references, from all interview types, about parents and their involvement with their child's education. Respondents often suggested that parental support is too low or that involvement could be improved in some specific way.

The most common theme from all interview types was the need to increase parental involvement; to help parents better understand issues that can impact their child's education (e.g., CAHSEE requirement, learn of the availability of community outreach programs), be involved in decision-making through various parent organizations, or help the children with homework and test preparation. Often teachers would indicate that the schools are making efforts to offer classes for parents such as language or parenting classes, going to the parent's homes, or providing translators for meetings and programs but that parents still refuse to get involved. This problem was noted for the EL population significantly more often than for other subpopulations. It is not evident from the comments whether this is a cultural issue or if it stems more from the language barrier; parents who have a difficult time communicating effectively may simply avoid contact. Also, parents who work several jobs may find it difficult to find the time for involvement.

The types of things that schools are doing to increase parental support range from increasing parent/teacher conversations to college preparation classes. These programs include, but are not limited to:

- phone calls or letters requesting parent/teacher conferences;
- invitations to IEP meetings with teachers, students, and parents;
- special parent nights for parents to visit the school and teachers, sometimes held shortly before tests to help parents understand how best to prepare their children;
- workshops and panels to provide information on specific topics;
- parent institute after school with Spanish-speaking sections to gain comfort with all aspects of school life;
- parent clubs that raise money to support after-school tutoring opportunities;
- school level (often bilingual) parent advisory committees to work on various issues impacting the schools and parents;
- district-level councils to discuss more global educational issues;
- classes for parents in language, math, parenting, and special education issues;
- college or university preparation classes for credit.

Effectiveness of Remediation

Effectiveness of Remediation—Surveys. District ELA and mathematics curriculum heads were asked about student participation in, and effectiveness of, remediation courses. Specifically, the survey asked what proportion of students who did not pass the ELA or math portion of the CAHSEE by spring 2004 subsequently enrolled in a remedial summer course. The survey then asked what proportion of students in the summer school course passed the ELA or math portion of the CAHSEE in July or September 2004. These were both closed-ended items with response categories capturing broad percentage ranges.

Tables 4.21 and 4.22 summarize the curriculum heads' responses to these two questions for ELA and mathematics, respectively. A substantial proportion of respondents (12% and 15%) indicated that the information regarding summer school enrollment is not readily available at the school level. A larger proportion (23% in each case) indicated that the subsequent CAHSEE performance of summer school enrollees is not readily available. Among those who were able to respond meaningfully to both survey questions, the most common responses were that "some" students (25–74%) enrolled in a summer school remedial class, and "some" students (25–74%) subsequently passed the CAHSEE.

Table 4.21. Participation of Students in ELA Remedial Courses and Subsequent CAHSEE Performance, According to District ELA Curriculum Heads

Proportion of Non-Passing Students Enrolled in Remedial Summer Course	Proportion of Summer School Attendees who Subsequently Passed CAHSEE						Total
	Data Not Available	Not Applicable	Only a Few (< 25%)	Some (25–74%)	Most (75–90%)	Nearly All (> 90%)	
Data Not Available	10.2%	1.9%					12.0%
No Summer School Courses		13.9%					13.9%
Only a Few (< 25%)	4.6%	7.4%	2.8%	3.7%	1.9%		20.4%
Some (25–74%)	5.6%	7.4%	9.3%	13.0%	.9%		36.1%
Most (75–90%)	.9%	2.8%		6.5%	1.9%	.9%	13.0%
Nearly All (> 90%)	1.9%			1.9%		.9%	4.6%
Total	23.1%	33.3%	12.0%	25.0%	4.6%	1.9%	100.0 %

Table 4.22. Participation of Students in Mathematics Remedial Courses and Subsequent CAHSEE Performance, According to District Mathematics Curriculum Heads

Proportion of Non-Passing Students Enrolled in Remedial Summer Course	Proportion of Summer School Attendees who Subsequently Passed CAHSEE						Total
	Data Not Available	Not Applicable	Only a Few (< 25%)	Some (25–74%)	Most (75–90%)	Nearly All (> 90%)	
Data Not Available	12.5%	3.1%					15.6%
No Summer School Courses		17.7%					17.7%
Only a Few (< 25%)	5.2%	7.3%	5.2%	7.3%	1.0%	1.0%	27.1%
Some (25–74%)	5.2%	7.3%	5.2%	12.5%	1.0%		31.3%
Most (75–90%)		1.0%		3.1%	1.0%		5.2%
Nearly All (> 90%)				2.1%		1.0%	3.1%
Total	22.9%	36.5%	10.4%	25.0%	3.1%	2.1%	100.0 %

Effectiveness of Remediation—Site Visits. During the site visit interviews, we asked administrators and special courses instructors whether or not the remediation programs at their schools seem to be doing what they were designed to do. Most

administrators (51%) did not answer this question, as it was not part of the short form. Of the administrators who did respond, 18 percent reported that the program is meeting expectations; 6 percent gave mixed responses, meaning that the program is meeting the needs of some students but not others. Only 4 percent said that the program was not meeting expectations. Finally, 14 percent reported that they did not know whether the program was working, usually citing that the school had not yet received data to answer the question.

Special courses teachers reported a more positive outlook on CAHSEE remediation classes. They said courses were meeting expectations 73 percent of the time. Only 9 percent said the classes did not meet expectations, 6 percent gave mixed responses and 6 percent reported that they were waiting for data to analyze to determine the effectiveness of the programs.

When teachers and administrators said the programs were not doing what they were designed to do, or they were only meeting the needs of some students, they reported many reasons for the mixed success. Respondents reported that remediation classes are typically set up to serve the needs of all students; therefore, they were not necessarily as effective for individual children. Teachers noted several groups who do not seem to benefit as much as others from the current programs. Some of these were transient or migrant populations, students coming to high school with no previous education, English learners, students with low academic skills, students in foster care, and children with sensory deficits and other special needs.

Interviewers also asked some respondents for recommendations to improve the level of CAHSEE support both for the general population and subpopulations. The responses of general education math and ELA teachers focused on two main areas, (a) the need for more remediation or preparation courses to help prepare students for CAHSEE, and (b) the need for increased support and involvement from parents. These two areas were the same for the general population and for subpopulations, with only slight differences in the frequency of responses. For the general population, 27 percent of responses stated that more courses were needed, compared to 24 percent of responses for subpopulations. For the general population, 11 percent of responses stated that more parental involvement was needed, compared to 15 percent of responses related to subpopulations. Because respondents were not limited to a single response but could give as many responses as they felt were necessary, these percentages were determined by counting the number of times courses or parents were mentioned and dividing that number by the actual number of respondents.

For special education teachers, of the possible 78 respondents, 12 either did not answer the question or had no idea how to improve the level of CAHSEE support for the special education students, while another 4 stated they could offer no suggestions because they are doing all they can do. Of the remaining 62 respondents, as with the other interview categories, more than a third suggested the addition of new courses, stating there was a need to provide classes geared specifically to CAHSEE remediation, additional periods of English or math, tutoring opportunities, and various workshops.

Some also expressed concerns that more accommodations (to match students' IEPs) should be provided for the CAHSEE requirement. A few additional single suggestions were to provide more student data to the teachers, initiate a peer-mentoring program, and obtain more administrative support.

The responses of EL teachers were similar to those of the special education teachers. Of the 67 possible respondents, 15 either did not answer the question or had no idea how to improve the level of CAHSEE support for the EL students; another 3 stated they could offer no suggestions because they are doing all they can do. Of the remaining 49 respondents, as with the other interview categories, the largest number (more than one third, suggested the addition of new courses, stating there was a need to provide classes geared specifically to CAHSEE remediation, additional periods of English or math, tutoring opportunities, and various workshops. A few additional suggestions were to provide more student data to the teachers, smaller classes, and improved placement of students.

Factors Related to Test Score Performance

One goal of this evaluation was to identify factors that might contribute to (or hamper) student performance on the CAHSEE. To this end, survey and interview responses were correlated with school characteristics in order to facilitate a deeper interpretation of those responses. This allowed, for example, responses to a particular survey item to be analyzed to see whether they were related to school size (small, medium, or large) or to ELA gain scores between 2004 and 2005 (small, moderate, or large).

Combining Survey and Interview Data with School-Level CAHSEE Achievement Characteristics

As with the demographic categorization of schools depicted in Table 4.9, each high school within the sample was classified by performance of its students on the CAHSEE in 2005. Tables 4.23 and 4.24 summarize the cut points and distribution of CAHSEE test performance among participating high schools. Pass rates describe students in the Class of 2007 taking the test as 10th graders in 2004–2005. Gain scores describe gains among students in the Class of 2006 who took the test as 10th graders in 2003–2004 and retested as 11th graders in 2004–2005. Gain scores were divided into three categories such that approximately 25 percent of schools were categorized as small, 50 percent medium, and 25 percent large. However, the categorizations of demographic groups passing either the ELA or math portion of the CAHSEE were divided into four (4) categories in order to be consistent with previous reports.

Table 4.23. Empirical Classifications of High Schools into Categories: CAHSEE ELA Performance

Category	Classifications	N	% of Sample
Percentage in School Passing ELA (*n*=247)			
	Very Low (<= 50%)	11	4.5
	Low (>50–75%)	101	40.9
	Moderate (>75–90%)	97	39.3
	High (> 90%)	38	15.4
Percentage African American in School Passing ELA (*n*=241)			
	Very Low (<= 50%)	40	16.6
	Low (>50–75%)	110	45.6
	Moderate (>75–90%)	59	24.5
	High (> 90%)	32	13.3
Percentage Hispanic in School Passing ELA (*n*=247)			
	Very Low (<= 50%)	13	5.3
	Low (>50–75%)	158	64.0
	Moderate (>75–90%)	66	26.7
	High (> 90%)	10	4.0
Percentage Economically Diasdvantaged in School Passing ELA (*n*=246)			
	Very Low (<= 50%)	16	6.5
	Low (>50–75%)	187	76.0
	Moderate (>75–90%)	36	14.6
	High (> 90%)	7	2.8
Percentage EL in School Passing ELA (*n*=242)			
	Very Low (<= 50%)	174	71.9
	Low (>50–75%)	62	25.6
	Moderate (>75–90%)	3	1.2
	High (> 90%)	3	1.2
Percentage SD in School Passing ELA (*n*=243)			
	Very Low (<= 50%)	198	81.1
	Low (>50–75%)	40	16.4
	Moderate (>75–90%)	3	1.2
	High (> 90%)	3	1.2
Mean School ELA Gain (in scale score points) (*n*=251)			
	Small Gain (<= 11)	53	21.1
	Moderate Gain (>11–17)	139	55.4
	Large Gain (> 17)	59	23.5
Mean School ELA Gain: Hispanic Students (*n*=245)			
	Small Gain (<= 11)	85	34.7
	Moderate Gain (>11–17)	119	48.6
	Large Gain (> 17)	41	16.7
Mean School ELA Gain: African American Students (*n*=217)			
	Small Gain (<= 11)	86	39.6
	Moderate Gain (>11–17)	66	30.4
	Large Gain (> 17)	65	30.0
Mean School ELA Gain: Economically Disadvantaged Students (*n*=248)			
	Small Gain (<= 11)	73	29.4
	Moderate Gain (>11–17)	122	49.2

Category	Classifications	N	% of Sample
	Large Gain (> 17)	53	21.4
Mean School ELA Gain: EL Students (*n*=241)			
	Small Gain (<= 11)	82	34.0
	Moderate Gain (>11–17)	103	42.7
	Large Gain (> 17)	56	23.2
Mean School ELA Gain: SD Students (*n*=243)			
	Small Gain (<= 11)	135	55.6
	Moderate Gain (>11–17)	74	30.5
	Large Gain (> 17)	34	14.0

Table 4.24. Empirical Classifications of High Schools into Categories: CAHSEE Mathematics Performance

Category	Classifications	N	% of Sample
Percentage in School Passing Math (*n*=247)			
	Very Low (<= 50%)	18	7.3
	Low (>50–75%)	103	41.7
	Moderate (>75–90%)	92	37.2
	High (> 90%)	34	13.8
Percentage African American in School Passing Math (*n*=241)			
	Very Low (<= 50%)	64	26.6
	Low (>50–75%)	115	47.7
	Moderate (>75–90%)	41	17.0
	High (> 90%)	21	8.7
Percentage Hispanic in School Passing Math (*n*=247)			
	Very Low (<= 50%)	26	10.5
	Low (>50–75%)	155	62.8
	Moderate (>75–90%)	58	23.5
	High (> 90%)	8	3.2
Percentage Economically Diasdvantaged in School Passing Math (*n*=246)			
	Very Low (<= 50%)	23	9.3
	Low (>50–75%)	176	71.5
	Moderate (>75–90%)	41	16.7
	High (> 90%)	6	2.4
Percentage EL in School Passing Math (*n*=242)			
	Very Low (<= 50%)	127	52.5
	Low (>50–75%)	89	36.8
	Moderate (>75–90%)	20	8.3
	High (> 90%)	6	2.5
Percentage SD in School Passing Math (*n*=244)			
	Very Low (<= 50%)	208	85.2
	Low (>50–75%)	31	12.7
	Moderate (>75–90%)	4	1.6
	High (> 90%)	1	0.4
Mean School Math Gain (in scale score points) (*n*=248)			
	Small Gain (<=7)	42	16.9

Category	Classifications	N	% of Sample
	Moderate Gain (>7–13)	134	54.0
	Large Gain (> 13)	72	29.0
Mean School Math Gain: Hispanic Students (*n*=240)			
	Small Gain (<=7)	63	26.3
	Moderate Gain (>7–13)	116	48.3
	Large Gain (> 13)	61	25.4
Mean School Math Gain: African American Students (*n*=220)			
	Small Gain (<=7)	92	41.8
	Moderate Gain (>7–13)	61	27.7
	Large Gain (> 13)	67	30.5
Mean School Math Gain: Economically Disadvantaged Students (*n*=246)			
	Small Gain (<=7)	67	27.2
	Moderate Gain (>7–13)	118	48.0
	Large Gain (> 13)	61	24.8
Mean School Math Gain: EL Students (*n*=237)			
	Small Gain (<=7)	77	32.5
	Moderate Gain (>7–13)	95	40.1
	Large Gain (> 13)	65	27.4
Mean School Math Gain: SD Students (*n*=242)			
	Small Gain (<=7)	134	55.4
	Moderate Gain (>7–13)	66	27.3
	Large Gain (> 13)	42	17.4

Relationship of Survey Responses to Test Score Gains

Statistical analyses compared various survey responses to CAHSEE performance categories depicted in Tables 4.21 and 4.22 to determine whether school-reported activities are related to increased student performance.

Teacher Qualification and CAHSEE Performance. Earlier in this chapter, we analyzed teacher qualification, including the prevalence of subject-area credentials and years of teaching experience. Here we compare those ratings to test performance. Table 4.25 reports results of several analyses of variance (ANOVA) conducted to compare the proportion of credentialed teachers and years of experience to classifications of percentages of students passing ELA and math (see Tables 4.23 and 4.24). Results indicated a statistically significant relationship in which schools with a higher proportion of math-certified teachers had higher CAHSEE math pass rates. While schools with a higher proportion of ELA-certified teachers tended to have higher CAHSEE ELA pass rates, the test achieved only marginal statistical significance. The results were less clear-cut regarding years of teaching experience. While a statistically significant relationship was found in that schools with a higher proportion of teachers with five or more years experience had higher ELA pass rates, that relationship was not found for math teaching experience and CAHSEE math pass rates.

Table 4.25. Relationships of Teaching Qualifications to CAHSEE Performance of 10th Grade Students in 2005

Indicator of Teacher Qualification	Statistical Findings	Significant Relationship?	Reference Table or Figure
Subject-Area Credential			
ELA	$f(4,175)=2.37$, $p<.06$	Marginally	Table 4.10 Table 4.23
Math	$f(4,188)=4.09$, $p<.01$	Yes	Table 4.10 Table 4.24
Years of Teaching Experience			
ELA	$f(2,181)=6.90$, $p<.01$	Yes	Figure 4.4 Table 4.23
Math	$f(2,190)=2.09$, $p<.13$	No	Figure 4.5 Table 4.24

Articulation and CAHSEE Performance. The surveys asked principals to rate the importance of regular articulation meetings with their feeder middle schools in preparing students for success on the CAHSEE, using a five-point Likert scale ranging from “Very unimportant” to “Very important.” Eighty-five percent of respondents rated these meetings as “Important” or “Very important.” Despite these uniformly high ratings, Table 4.26 indicates that principals of small schools rated articulation meetings as less important than did principals of medium and large schools ($f(2,193)=5.01$, $p<.01$).

Table 4.26. Mean Importance Ratings of Regular Articulation Meetings with Feeder School, According to High School Principals

Size of Student Class	N	Mean Rating (1–5)	Standard Deviation
Small (< 450)	56	4.05	.99
Medium (450–650)	80	4.40	.67
Large (> 650)	60	4.48	.38
Total	196	4.33	.06

The prevalence of regular articulation meetings between high school and feeder school staff was related to school-level pass rates in both ELA and mathematics. As depicted in Figure 4.7, on average, high schools that reported holding regular articulation meetings with all their feeder schools achieved higher ELA and math pass rates.

We also asked HS principals and MS principals open-ended survey items about what topics are discussed in these articulation meetings. These responses were coded into empirically-observed categories and tallied. Table 4.27 reveals that curriculum and academic placements are the most discussed issues for high schools during articulation meetings.

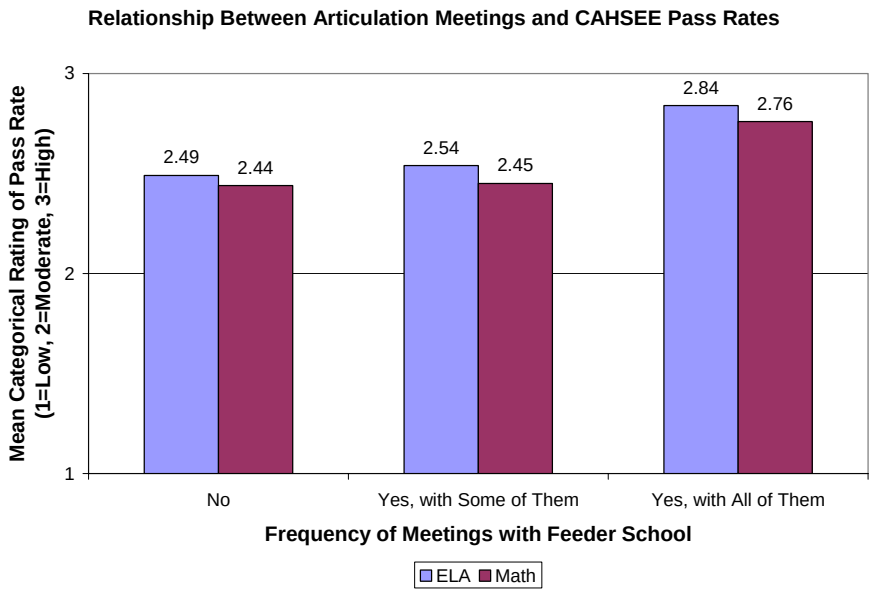


Figure 4.7. Prevalence of regular articulation meetings and CAHSEE pass rates (N_{ELA}=186; N_{Math}=190).

Table 4.27. Primary Topics Discussed During Articulation Meetings with Feeder Middle Schools, According to High School Principals

Topic Areas	Percentage % (N=216)
Curriculum	29.17
Academic Placement (Advanced & Special Education)	26.85
Standards	18.52
Testing	10.19
Articulation	5.56
Instruction	5.56
CAHSEE	5.09
Transition	5.09
Administrative Matters	4.17
Parent Advocacy	1.85

Note. Frequencies do not total to 100 percent because principals were allowed to identify multiple topics.

In a similar vein, the survey asked principals the degree to which coordination was developed among specific pairs of groups (i.e., middle school and high school, special education and general education, English language development and general education, alternative (continuation) and general education). Two of these relationship pairs were associated with higher pass rates for both ELA and mathematics. Figure 4.8 depicts the mean categorical rating of pass rates for each group. Although the differences in ELA pass rates failed to achieve statistical significance ($f(2,196)=1.46$, $p<.24$), the pattern paralleled that of math pass rates, which was statistically significant

(f(2,196)=3.22, p<.04). In both cases, higher coordination was associated with higher pass rates.

Figure 4.9 provides a similar presentation of the coordination between special education and general education within the high school. In this case, both ELA pass rates (f(2,194)=3.65, p< .03) and mathematics pass rates (f(2,194)=4.92, p<.01) were significantly related to the reported level of coordination. In both cases, higher coordination was associated with higher pass rates.

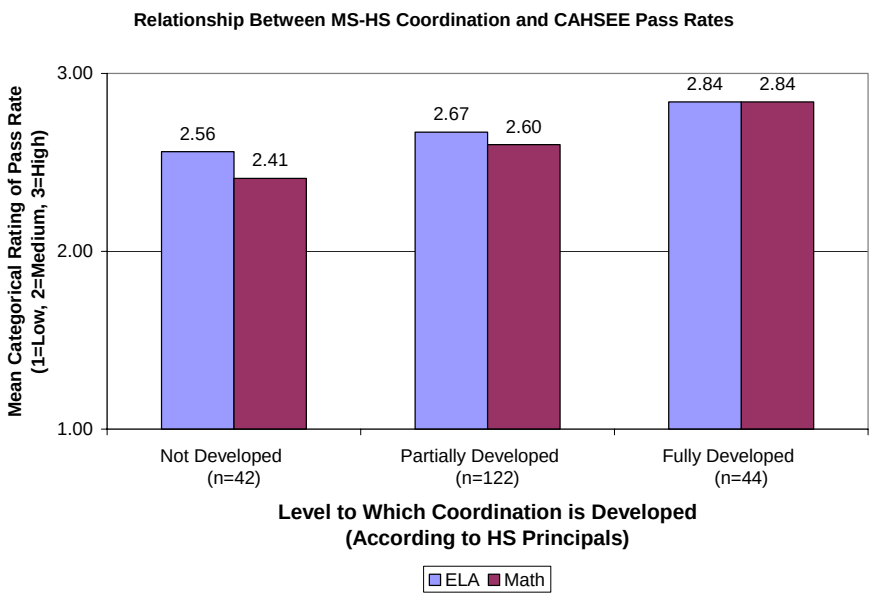


Figure 4.8. Level to which middle school-high school coordination is developed and CAHSEE pass rates (N_{ELA}=188; N_{Math}=192).

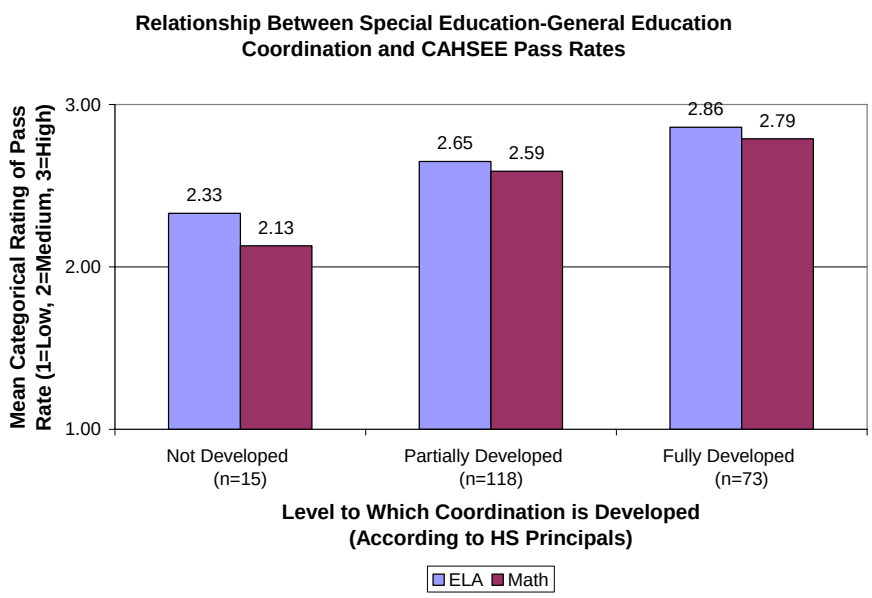


Figure 4.9. Level to which special education-general education coordination is developed and CAHSEE pass rates (N_{ELA}=186; N_{Math}=190).

We asked middle school principals to describe the topics discussed during their articulation meetings with their feeder elementary schools as well as articulation meetings with their receiving high schools. Responses were content-coded and tallied. Table 4.28 illustrates that the most common topics discussed with elementary school representatives were academic placement and curriculum. Table 4.29 indicates the most commonly discussed topics with high schools were curriculum, meeting standards, and academic placement.

Table 4.28. Primary Topics Discussed During Articulation Meetings with Feeder Elementary School, According to Middle School Principals

Topic Areas	Percentage of Issue Topics (N=19)
Academic Placement (Advance & Special Education)	57.89%
Curriculum	47.37%
Assessments & Testing	15.79%
Operations	15.79%
Meeting Standards	5.80%

Table 4.29. Primary Topics Discussed During Articulation Meetings with Receiving High Schools, According to Middle School Principals

Topic Areas	Percentage of Issue Topics (N=22)
Curriculum	68.18%
Meeting Standards	40.91%
Academic Placement (Advance & Special Education)	36.36%
Operations	22.73%
Assessment & Testing	18.18%
CAHSEE Preparation	9.09%
Parent Participation	4.55%
Student Programming	4.55%
Homework	4.55%

Interview Responses to Articulation within School Groups and Across School Levels

During the site visits, interviewers inquired about articulation within school groups and across school levels. Several protocols asked about the frequency of meetings between general education teachers and special education or EL teachers to discuss a student's needs or to collaborate on instruction. General education math and ELA teachers reported more frequent contact with special education teachers than with EL

teachers, probably because they had fewer EL students in class to begin with. For example, 28 percent of general education teachers reported very frequent contact (defined as contact occurring daily to every couple of weeks) with special education teachers. Only 11 percent of general education teachers reported very frequent contact with EL teachers, however. A higher percentage (49%) of general education teachers reported no contact with EL teachers than reported no contact with special education teachers (27%). The “no contact” category was derived by combining two categories: “never” and “not applicable,” which was associated with responses indicating that general education teachers did not have these students in class.

Nearly three quarters of the special education teachers indicated that they work with general education teachers on a frequent or moderately frequent basis, monitoring student progress and helping those who are having difficulty. Most of those teachers indicated that they team teach and collaborate regularly with the general education teachers. Several teachers who indicated they meet infrequently with general education teachers wished they could meet more often, citing that limited time and large caseloads are a problem.

Just over half of EL teachers (more than general education teachers, fewer than special education teachers) stated that they work with general education teachers on a frequent or moderately frequent basis. Their involvement with delivering content in the classroom appears to be a little less than special education teachers and their involvement focuses a little more on planning and advising. The teachers who indicated they meet infrequently with general education teachers did not elaborate enough to suggest any particular reason.

Researchers also conducted text searches for the term *articulation* in interviews. Among the 15 mentions of articulation in the general education math and ELA interviews, 8 respondents described generally positive examples of articulation, either within the school or across school levels. Interestingly, 7 respondents described articulation in terms of needing more or better articulation, particularly across school levels; of those interviews, 6 were from feeder school respondents who wanted more contact with their high schools. In one instance, the feeder school respondent reported wanting more contact with both the elementary and high schools.

Only four special education teachers mentioned articulation. Three stated there was a lot of communication regarding standards or IEPs while the fourth comment involved using a questionnaire to determine if middle or elementary schools modify the standards for their special education students. There were only two responses from the EL teachers; one stated there was regular (monthly) communication with the middle schools; the other comment was regarding working with feeder schools on student placement into high school.

Researchers also searched for the term “communication” and found one feeder school respondent who stated there was no communication between the elementary and feeder school. Similarly for the EL and special education teachers, only one

comment was found that was geared to articulation by a high school, stating there was little or no communication with the middle school.

School Staff Conclusions about the Class of 2006

School-Level Analysis of Conclusions

Near the end of each interview during on-site school visits, researchers asked teachers and administrators the following question: “In your opinion, are students in the class of 2006 ready to be held accountable to the CAHSEE graduation requirement?” The interviewees responded to the question in two slightly different ways. First, some interviewees responded to whether or not the students “should” be held accountable. The second way interviewees responded was to whether or not the students were “ready to pass” the CAHSEE. Some interviewees provided their opinions on both alternatives. This analysis focused on “should” the Class of 2006 be ready to be held accountable to the CAHSEE graduation requirement. Because of the length of the interview protocol and the time available for the interview, all interviewees were not asked this question. Again, only a small number of teachers selected by the school personnel were interviewed at each school.

Interviews for each school were grouped by interview type—administrator, math teacher, ELA teacher, EL teacher, and special education teacher. Each interview was reviewed to determine whether the interviewee stated if students at that school should be held accountable to the CAHSEE graduation requirement. All interviews for each type were then examined to determine whether “most” (more than 50%), “split” (50%-50%), or few (less than 50%) of all the interviewees of that type stated whether the Class of 2006 should be held accountable. Schools were then separated into four groups based on the CAHSEE pass rate for sophomores for that school for spring 2005. The four groups were “very low,” where 50 percent or less of sophomores passed the test; “low,” where more than 50 percent to 75 percent passed the CAHSEE; “moderate,” where more than 75 percent to 90 percent passed the CAHSEE; and “high,” where more than 90 percent passed the CAHSEE. These are the same categories used previously in this report.

Of the 47 high schools visited, 39 were categorized in the same scoring category for both the Math and ELA sections of the CAHSEE. For the other eight high schools, three high schools had a mix of “high” and “moderate” pass rates. These three schools were categorized with a “high” pass rate for our analyses. Two high schools were categorized with a “moderate” pass rate on one section and a “low” pass rate on the other section. These two high schools were categorized with a “low” pass rate for our analyses. Three high schools were categorized with a “low” pass rate on one section and a “very low” pass rate on the other section. These three high schools were categorized with a “very low” pass rate for our analyses. As a result, there were six high schools categorized with a “very low” pass rate, 21 high schools categorized with a “low” pass rate, 10 high schools categorized with a “moderate” pass rate, and 10 high schools categorized with a “high” pass rate.

The results for each high school group are described in the following sections. Because there were some schools in each category where administrators or teachers did not respond to this question, the number of respondents in each group in each category may not sum to the total number of high schools in the category.

High schools with "very low" CAHSEE pass rates. Of the six high schools in this category, there were responses from administrators at four high schools, math teachers at five high schools, ELA teachers at six high schools, EL teachers at three high schools, and special education teachers at five high.

Administrators at four of the six high schools classified as "very low" (pass rate of 50% or less) responded to the question on whether students in the Class of 2006 should be held accountable for the CAHSEE as a graduation requirement. At three of the four high schools, most administrators indicated that the students had been given the opportunity to learn what was being tested on the CAHSEE, had been given the opportunity for and had received remedial assistance, and should be held accountable; however, many of these administrators believe that many students at their school would not pass the CAHSEE. Despite these beliefs, most administrators at these schools said not to delay/cancel CAHSEE. They stated that once it is implemented there would be improvement. If the implementation was delayed, on the other hand, administrators are concerned that parents and students would lose the motivation that is being generated by CAHSEE. The school where most administrators did not think the Class of 2006 should be held accountable stated that school personnel did not look forward to students not graduating because they did not pass CAHSEE and the CAHSEE is too challenging.

Math teachers at five of the six schools and ELA teachers at all six schools responded to the question on whether students in the Class of 2006 should be held accountable for the CAHSEE as a graduation requirement. Most general math teachers (including those teaching the remedial and CAHSEE preparation classes) at the five high schools and most ELA teachers at five of the six high schools (the ELA teachers at the other school were split) where they responded indicated that students in the Class of 2006 should be held accountable for the CAHSEE as a graduation requirement. Generally, teachers commented that students have been given adequate notice, had every opportunity to prepare themselves, and have been given additional assistance. Teachers, like their administrators, believed that there would be students who would not pass the CAHSEE. Teachers tended to echo the administrators in that there would be issues for the first class held accountable for passing the CAHSEE. However, there would be improvement and increased motivation for future classes.

The majority of EL teachers at two of three of the "very low" pass rate high schools indicated that some or many of their students do not have the language fluency to pass the CAHSEE and should not be held accountable for passing CAHSEE as a graduation requirement.

Most special education teachers at three of the five high schools indicated that only some of their students should be held accountable. These students are the ones with the ability to perform to the CAHSEE-required proficiency level on the California content standards. Most special education teachers generally commented that a portion of their students would never be able to attain the level of proficiency required to pass CAHSEE. The special education teachers stated that some alternative should be provided for those students. The general education teachers and administrators echoed the special education teachers' beliefs that some students with disabilities should be held accountable and that some alternative should be provided for the students who do not have the ability to attain the required level of proficiency because of their disabilities.

High schools with "low" CAHSEE pass rates. Of the 21 high schools in this category, there were responses from administrators at 14 high schools, math teachers at 21 high schools, ELA teachers at 20 high schools, EL teachers at 21 high schools, and special education teachers at 20 high schools.

Most administrators at 11 of the 15 schools in this category where an administrator responded stated that the Class of 2006 should be held accountable for passing the CAHSEE. Generally, administrators stated that students had been informed of the requirement far enough in advance and had been provided instruction and remediation as necessary on the standards to be able to pass the CAHSEE. Most math teachers at 20 of the 21 high schools and most ELA teachers at 15 of 20 high schools stated that the Class of 2006 should be held accountable for CAHSEE. However, at only 10 of 21 high schools did most EL teachers consider their EL students ready to be held accountable. EL teachers at 5 high schools were split. Many EL teachers stated that their students did not have the English language proficiency necessary to pass the math or ELA portions of CAHSEE. EL teachers were split on whether their EL students should be held accountable for passing the CAHSEE. EL teachers stated that many EL students had not been in the United States long enough to become proficient in English. At only 4 of 20 high schools did most special education teachers believe that their special education students should be held accountable for passing CAHSEE. At 8 of the 20 high schools, the special education teachers were split on whether their students should be held accountable for passing CAHSEE. Many times this split centered on the higher performing resource students; many special education teachers stated that accountability should be dependent on an individual student's ability.

High schools with "moderate" CAHSEE pass rates. At the 10 high schools in this category, there were responses from administrators at 7 high schools, math teachers at 10 high schools, ELA teachers at 9 high schools, EL teachers at 6 high schools, and special education teachers at 9 high schools.

Administrators and math and ELA teachers who were interviewed at almost every high school in this group (administrators at 7 of 7 high schools, math teachers at 8 of 10 high schools, and ELA teachers at 9 of 9 high schools) stated that the general education students at their school were prepared to be accountable for the CAHSEE as a graduation requirement. Most EL teachers interviewed at 4 of 6 high schools stated

that EL students at their high school were prepared to be accountable for CAHSEE. However, many EL teachers and other teachers and administrators at these high schools indicated that some EL students (especially the newer arrivals from outside the United States) had not attained an English language proficiency that would enable them to pass the CAHSEE. Most special education teachers interviewed at 6 of 9 high schools stated that their students were prepared to be accountable for the CAHSEE. But many special education teachers, administrators, and general education teachers expressed concern that some resource students and almost all special day students would not be able to pass the CAHSEE.

High schools with "high" CAHSEE pass rates. Of the 10 high schools in this category, there were responses from administrators at 9 high schools, math teachers at 10 high schools, ELA teachers at 9 high schools, EL teachers at 7 high schools, and special education teachers at 7 high schools of the 10 high schools in this category.

Most administrators (9 of 9 high schools), math teachers (10 of 10 high schools), and ELA teachers (9 of 9 high schools) at "high" CAHSEE pass-rate high schools where they responded to the questions on whether students in the Class of 2006 should be held accountable for the CAHSEE as a graduation requirement stated the Class of 2006 should be held accountable. Administrators and math and ELA teachers stated that students generally arrive at the high school having mastered while in middle school most if not all the standards assessed on the CAHSEE. Staff and faculty at these schools stated that they generally provide the refinement of those skills rather than helping the students to acquire the skills. Most, if not all, students who did not pass on their first attempt passed on their next attempt. The schools generally have "low" percentages of EL students and students with disabilities. Most EL students are also at the higher levels of English-language proficiency within the EL program. All staff and faculty reported that their students were prepared to be held accountable for the CAHSEE as a graduation requirement. Special education teachers did report that while most or all of their resource students were able to pass the CAHSEE in the Class of 2006, subsequent students and the special day students may not be able to pass the CAHSEE because of their disabilities.

Summary Findings

Students

High school ELA teachers, and to a greater extent, math teachers, continue to report that students come to high school unprepared for their courses. In the spring 2005 survey, 28 percent of ELA teachers and 39 percent of mathematics teachers estimate that "most" of their students do not yet have prerequisite skills. Both ELA and math teacher ratings were less optimistic in schools with high concentrations of EL, economically disadvantaged, and Hispanic students, as well as math ratings in schools with high concentrations of African American students. In both ELA and math, teachers rated students as more prepared in schools with high concentrations of SD students.

More than half of surveyed high school teachers cited student motivation as an important factor limiting the effectiveness of the courses they teach. Over a third of teachers noted low parental support and low student attendance as impediments. Teacher ratings of these three problem areas were higher for remedial courses than for other courses. Parental support was rated as a greater problem for required supplemental courses targeted to remediation than for any other course type.

Teachers

An investigation of teacher credentialing and the assignment of subject-area credentialed teachers to courses and students revealed some interesting patterns. While three-quarters of high schools report that nearly all their teachers hold appropriate credentials, in other schools at least a quarter of the teaching staff remains uncredentialed. Over half of schools report using some mathematics teachers with emergency credentials and a third of schools have some ELA teachers with emergency credentials. While EL students receive instruction from credentialed teachers at nearly the same rate as all students, students with disabilities, whether defined as students receiving special education services or students with IEPs, are more likely to receive both ELA and mathematics instruction from a teacher who does not hold a subject-area credential.

A comparison of teacher credentialing and years of experience to within-school student demographics revealed that ELA credentialing is lower in schools with high concentrations of African American students. Lower percentages of schools with high concentrations of EL, economically disadvantaged, Hispanic, and African American students report math teachers with subject-area credentials than do schools without such high concentrations of at-risk students.

This study determined that, overall, teachers with greater experience tend to teach primary and supplemental courses, as compared to teachers of basic or intervention programs. In every analyzed student demographic category (i.e., EL,SD, economically disadvantaged, Hispanic, African American), in both ELA and mathematics, and for both primary/supplemental and basic/intervention courses, a smaller percentage of schools with relatively high concentrations of at-risk students report most teachers have at least five years of experience.

Factors Impacting CAHSEE Performance

HumRRO tested numerous survey items to determine whether they were related to school-level CAHSEE performance. CAHSEE performance was measured in multiple ways: mean test scores in the 2004–2005 school year, mean test score gains among students who tested for the first time in 2003–2004 and subsequently retested in 2004–2005, and these scores and gains for various population subgroups. Few survey questions proved reliably predictive of CAHSEE success.

Teacher qualification was found to be related to CAHSEE performance. Specifically, higher reported proportions of teachers holding subject-area credentials were related to higher ELA and math CAHSEE test performance by 10th graders in 2004–2005. In addition, schools with a higher proportion of ELA teachers with five or more years experience had higher ELA pass rates; that relationship was not found for math teaching experience and CAHSEE math pass rates.

Articulation/coordination was also found to be related to CAHSEE performance—articulation between the feeder middle school and the high school as well as coordination between special education and general education staff. The greater the articulation and coordination between schools and teaching populations, the higher the ELA and mathematics test performance.

Opinion as to Class of 2006's Readiness to be Held Accountable to CAHSEE Graduation Requirement—Site Visits

The majority (59%) of general education math and ELA teachers at both high school and feeder school levels stated that the Class of 2006 was ready to be held accountable to the CAHSEE graduation requirement, with 20 percent stating that these students were not ready and 14 percent giving a "mixed" response. Mixed responses were those that typically stated that while most students are ready to be held accountable, a certain segment (usually special education or EL students) is not.

Interestingly, researchers found differences in the way high school and feeder school teachers viewed CAHSEE readiness for the Class of 2006. For example, a higher percentage of high school teachers responded that the Class of 2006 is ready, compared to feeder school teachers (67% to 36%, respectively), while feeder school teachers were more likely to report that students were not yet ready (33% feeder school, 16% high school). Mixed responses in the two groups were similar (13% of high school teachers and 16% of feeder school teachers). Feeder school teachers have reported being less familiar with what is on the CAHSEE, and this unfamiliarity may be supported by these responses. If teachers do not know what is on the CAHSEE, they will be less ready to state that students should be held accountable for the CAHSEE graduation requirement.

More than half of the special education teachers (42 out of 78), on the other hand, indicated that they do not believe special education students are ready to pass the CAHSEE. A little over a quarter of the respondents (16) stated that students were ready, with 15 providing mixed responses that some (generally special day and lower-level resource) will not pass and some (higher-level resource) will.

The EL teachers' opinions were very similar to those of special education teachers, with nearly half (30 out of 67) of the respondents believing that EL students are not ready to pass the CAHSEE. A little over a quarter of the respondents (18) stated that students were ready, with 15 providing mixed responses.

Interviewers also asked respondents to explain their answers to the previous question. Respondents were free to give multiple answers, so percentages will not add to 100%. The most frequent responses from general education math and ELA teachers who stated that the Class of 2006 is ready centered on three topics: students are generally ready (49%), students need accountability (15%), and CAHSEE is not overly challenging to students (12%). Topics shifted when researchers examined the explanations of teachers who stated that the Class of 2006 is not ready: 34 percent stated that students are still academically weak, and 17 percent stated that there is a concern with materials, such as not having aligned textbooks. Two responses were tied at 13 percent: students need to be held accountable and students have a poor attitude. The greatest areas of concern for those giving mixed responses were students who are academically weak (19%), blank responses (19%), students are generally ready (16%), and a concern for special education students (16%).

We found that over half of the special education teachers felt students were not ready because the students were weak academically; they needed improved materials and curriculum, and needed more accommodations. The most common responses for the respondents indicating students were ready for the CAHSEE requirement were that the students have had ample time to prepare and have received adequate support (classes, materials) to be successful. The mixed responses for the most part indicated a concern that lower level special education students will not be prepared for the requirement.

For EL teachers, we found that nearly half of the teachers felt students were not ready because students needed more time or were weak academically. The most common responses for the respondents indicating students were ready for the CAHSEE requirement were the students have received adequate support (classes, materials) to be successful and their expectations were high. The mixed responses for the most part indicated a concern that lower level EL students will not be prepared for the requirement.

Chapter 5: Impact of the CAHSEE Requirement on Instruction and Remediation

Introduction

Evidence for the impact of the CAHSEE requirement on school educational practices was gathered primarily through surveys and interviews. As described in Chapter 1, a stratified representative sample of districts, high schools, and feeder schools was identified to receive surveys. A subsample of these schools was visited in person for a series of one-on-one interviews. The topics of surveys and site visits overlapped heavily. The surveys provided a cost-effective means to gather data from a large representative sample of schools, while the site visits facilitated collection of richer information in a modality that allowed follow-up clarification as necessary.

Organization of This Chapter

Descriptions of the various respondent samples are presented in Chapter 4, including how closely they represent the state as a whole. These descriptions are not repeated here, but the reader is reminded that the survey and site visit response samples closely paralleled the state population.

This chapter provides a thematically driven discussion of the findings across all data channels. For example, information from surveys and interviews of high school principals and middle school principals are brought together in a discussion of content coverage. Readers interested in a comprehensive list of survey and interview responses, organized by respondent group, are referred to Appendices E and F.

Findings at the School Level

High school and middle school principals were asked about school-wide issues such as coverage of content standards over time, staff professional development, student proficiency tracking mechanisms, coordination between specialized education staff, and articulation meetings with feeder schools.

Increasing Coverage of the California Academic Content Standards

We asked high school principals to indicate how completely their school covered the California Content Standards contained in the blueprints adopted for CAHSEE, for school years 2004–2005, 2003–2004, 2002–2003, and prior to 2002. Figures 5.1 and 5.2 are organized by maximum coverage from left to right. For example, 47 percent of principals reported complete coverage in the 2004–2005 school year and an additional 47 percent indicated “most” standards were covered in that same year, for a total of 94 percent reporting at least “most” coverage. Inspection of the figures indicates a steady increase in coverage in ELA and mathematics content coverage, respectively. Seven percent of principals indicated that ELA content was completely covered prior to 2002; 16 percent reported that ELA content was completely covered in the 2002–2003 school year; 28 percent in 2003–2004; and 47 percent predict complete coverage in 2004–

2005. Only 5 percent of principals indicated partial or little ELA coverage, and 7 percent reported partial or little mathematics coverage, in 2004–2005.

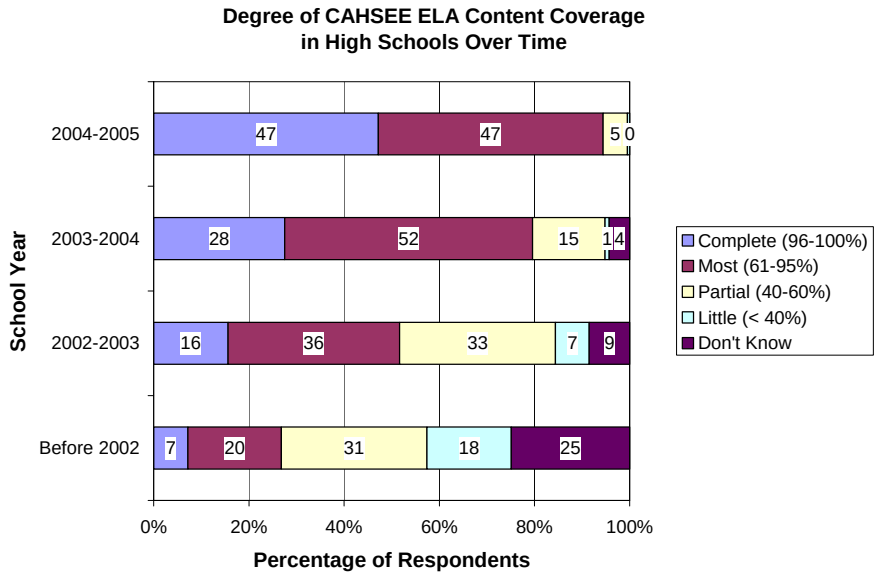


Figure 5.1. High school principals' estimates of how completely their school covered the California ELA Content Standards contained in the blueprints adopted for CAHSEE, over time.

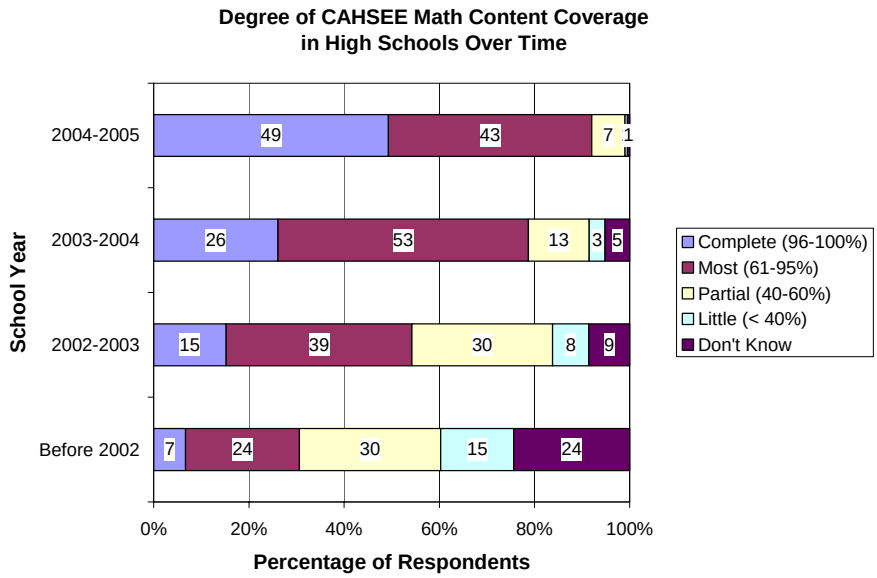


Figure 5.2. High school principals' estimates of how completely their school covered the California Mathematics Content Standards contained in the blueprints adopted for CAHSEE, over time.

We also analyzed this question separately for schools with high concentrations of at-risk students, as described in Chapter 4. Table 5.1 indicates that a slightly smaller proportion of principals in schools with high concentrations of at-risk students report that the California content standards contained in the CAHSEE ELA and math blueprints are

mostly (61–95%) or completely (96–100%) covered. The only exception was math coverage in schools with a high concentration of EL students (93.6%) compared to schools with a low or moderate concentration of EL students (90.6%).

Table 5.1. Degree of CAHSEE Content Coverage in Schools with High Concentrations of At-risk Students, According to Principals

Student Demographic Subgroup	School Group	Number of Responding Schools in High/Not High Group	Percentage of Schools with Most/Complete (>60%) Content Coverage
ELA			
EL Students	Not High	159	95.0%
	High (> 27%)	47	91.5%
SD Students	Not High	148	95.3%
	High (>10%)	58	91.4%
Economically Disadvantaged Students	Not High	157	95.5%
	High (>60%)	49	89.8%
Hispanic Students	Not High	151	94.7%
	High (>60%)	55	92.7%
African American Students	Not High	167	94.6%
	High (>12%)	39	92.3%
Math			
EL Students	Not High	159	90.6%
	High (> 27%)	47	93.6%
SD Students	Not High	148	92.6%
	High (>10%)	58	87.9%
Economically Disadvantaged Students	Not High	157	92.4%
	High (>60%)	49	87.8%
Hispanic Students	Not High	151	93.4%
	High (>60%)	55	85.5%
African American Students	Not High	167	91.6%
	High (>12%)	39	89.7%

A recurring issue raised by high school staff is that feeder middle schools do not sufficiently prepare students for high school instruction (see Figure 4.1). Given this concern, coupled with the fact that many CAHSEE standards are targeted at the middle school level, this investigation sought to shed light on trends in the preparation provided in middle school.

To this end, middle school principals were asked a similar question regarding content coverage over time. Figures 5.3 and 5.4 depict their responses. Similar to their high school counterparts, middle school principals indicate a steady increase in coverage in ELA and mathematics content coverage, respectively. However, the

reported coverage in middle school consistently lags behind that of high school. Unlike the high school principals, approximately six percent of middle school principals report they do not know the degree of content coverage in the current school year. This last point is perhaps not surprising, given that middle schools may not routinely receive direct feedback on how their former students fare on the high school exam.

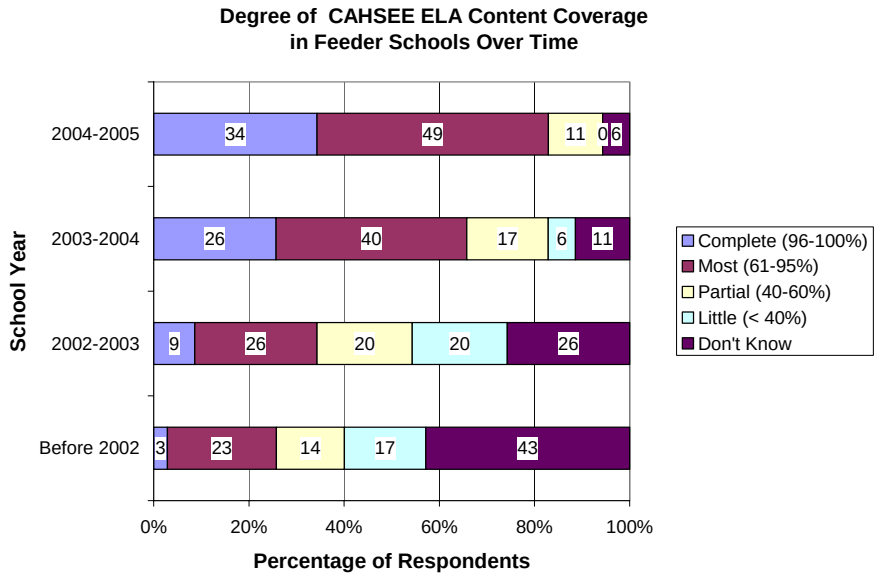


Figure 5.3. Middle school principals' estimates of how completely their school covered the California ELA Content Standards contained in the blueprints adopted for CAHSEE, over time.

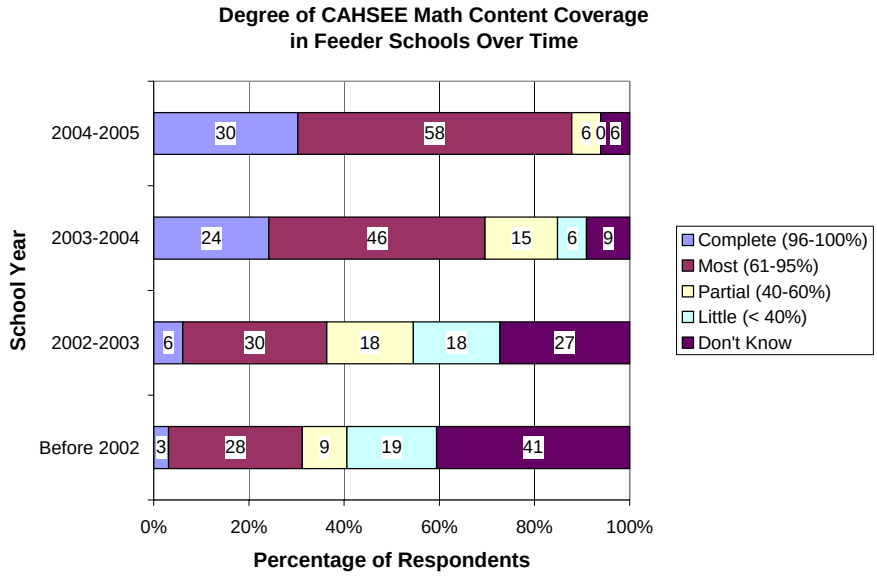


Figure 5.4. Middle school principals' estimates of how completely their school covered the California Mathematics Content Standards contained in the blueprints adopted for CAHSEE, over time.

Standards Implementation—Site Visits. Interviewers asked respondents to indicate, using a 1-to-5-point Likert-type scale, at what point in the process of implementing instruction based on the California Content Standards their department is. They were also asked to think back to two years ago and give a rating that would reflect implementation at that time. Results in Table 5.2 show that respondents believe the implementation of standards has increased, when asked to compare current implementation to implementation in effect two years ago.

Table 5.2. Rate of Implementation of Instruction Based on California Content Standards, Current v. 2 Years Ago, by Interview Type and Level

	Mean-Current Year	Mean-2 Years Ago	Mean Difference
Gen Ed HS	4.3 (n=206)	3.3 (n=171	1.1 (n=171)
Gen Ed FS	4.6 (n=64)	3.4 (n=57)	1.3 (n=57)
Admin HS	4.05 (n=64)	2.67 (n=56)	1.38 (n=56)
Admin FS	4.5 (n=16)	2.9 (n=13)	1.6 (n=13)
Sp Ed HS	3.7 (n=64)	2.4 (n=54)	1.3 (n=54)
Sp Ed FS	4.4 (n=10)	2.9 (n=10)	1.5 (n=10)
EL HS	4.4 (n=51)	2.9 (n=42)	1.5 (n=42)
EL FS	4.0 (n=13)	3.1 (n=13)	0.8 (n=13)
Sp Course HS	4.38 (n=13)	3.75 (n=10)	0.63 (n=10)
Sp Course FS	4.5 (n=2)	3.0 (n=2)	1.5 (n=2)

Note: Rates are based on a 1-to-5-point Likert scale.

This question was also asked of some respondents on the previous AB 1609 study. There were only slight differences between current ratings provided by general education teachers on the AB 1609 study and those given for this study, with high school teachers rating implementation very near a 4 for high school ELA teachers and just over a 4 for high school math teachers on the AB 1609 study. Feeder school ratings also showed similarities when asked to estimate current implementation, with a rating of 4.4 given by feeder school ELA teachers and 4.9 given by feeder school math teachers on the AB 1609 study. Administrators on the previous study gave somewhat lower ratings to this question, with high school administrators giving an average rating of 3.6 and feeder school administrators giving an average rating of 3.7.

Consistency of Standards-Based Education

Mastery—Site Visits. General education math and ELA teachers were asked what ensures that the California Content Standards are being taught to the same level by all teachers of a particular course; in other words, whether *mastery* means the same thing to all teachers. Responses to this question were not limited to a single answer; respondents were free to give multiple responses, so the percentages will not total to 100 percent. As was done in previous questions, percentages were determined by dividing the number of responses per category by the total number of respondents. Researchers found that responses indicating no formal process or definition of mastery were given about 29 percent of the time. This indicates that schools still have a considerable amount of work to do in developing a common definition in order for all teachers to teach to the same depth of understanding. Other responses indicated the

use of common exams (38%), as well as discussing mastery in meetings or professional development (18%), the use of documents such as curriculum maps or pacing guides to help ensure mastery (also 18%), and the use of common materials, rubrics, or grading systems (17%).

Special courses instructors most frequently (36%) responded that no formal process or consistent definition of mastery was used in their school. The next most frequent response (15%) reported the use of department or staff meetings or professional development, and 12 percent reported that observations or evaluations by administrators or peers were used to monitor this issue.

Administrators were also asked this question. Many (37%) said they used staff or department meetings, or professional development to address the issue. Common exams or benchmark testing at the department, school, or district level were reported 11 percent of the time. Use of the same materials, grading systems or common rubrics was reported 7 percent of the time, and 6 percent reported that observations or evaluations by administrators or peers monitored teacher efficacy. Another 6 percent said no formal process or consistent definition of mastery was used in their schools.

Unlike the general math and English teachers, the number of special education teachers who stated there was no formal process or consistent definition of mastery was significantly less (10% of the respondents compared to 29%). As one would anticipate, numerous respondents indicated that IEPs play a significant role in defining, as well as assessing, mastery for special education students. The process appears to be similar for general education with regard to the process that ensures the standards are being taught at the appropriate instructional level or grade level to assure student mastery of material (i.e., benchmarks, collaboration, curriculum calibration, data analysis). However, defining mastery or how it applies to special education students is not so clear. The reason appears to be rooted in the definition or distinction between accommodation and modification. The 68 respondents who stated that there were differences in how the standards are being applied to special education students indicated that those differences were with regard to depth, time, quantity, and grading. A discussion of what types of accommodations, or modifications, are appropriate or acceptable is not in the purview of this analysis.

A low number (less than 15%) of EL teacher respondents state that there was no formal process or consistent definition of mastery. EL teachers indicated that standards are being taught at the appropriate grade level because of the use of materials/textbooks aligned with standards and additional testing for student placement. Like special education teachers, 58 of 67 EL teacher respondents noted that there were differences in how the standards were being applied to EL students with regard to depth, time, quantity, and grading.

Of 270 possible general education teacher respondents, 111 (41 %) said their special education or EL students were held to the same standards and definition of mastery as regular students. However, they typically stated that special education

students could receive accommodations in the classroom per the student's Individualized Education Program (IEP). One of the most commonly mentioned accommodations was giving the student extra time to complete assignments, or the reduction of the amount of work required (in effect, giving the student more time). Time management becomes even more important as teachers must deal with students who are mastering material at different speeds, often within the same class. Some teachers expressed their frustration at what they see as too many standards to teach to mastery. Special education and EL teachers responded similarly with regard to accommodations for time and reduced assignments.

EL teachers were asked an additional question to determine if the process in which student mastery is monitored was modified for EL students, and if so, in what ways. Of the 62 who responded to this question, 37 stated that the process was the same; 5 provided answers that were off topic, and 20 said the process was modified. Over half the respondents (12) stated that EL students have to take additional tests such as the California English Language Development Test (CELDT), HighPoint, transition tests, or benchmark tests. Four responses focused on instructional differences, two indicated they used portfolios to assess power English language development (ELD) standards, and two provided no additional information.

Exeprience in Teaching California Content Standards

A survey asked high school ELA and math department chairs to rate the extent to which their departments' teachers were experienced in teaching the California Content Standards associated with the CAHSEE, on a scale of 1–5. Figure 5.5 indicates that ratings were generally high for both ELA and mathematics departments.

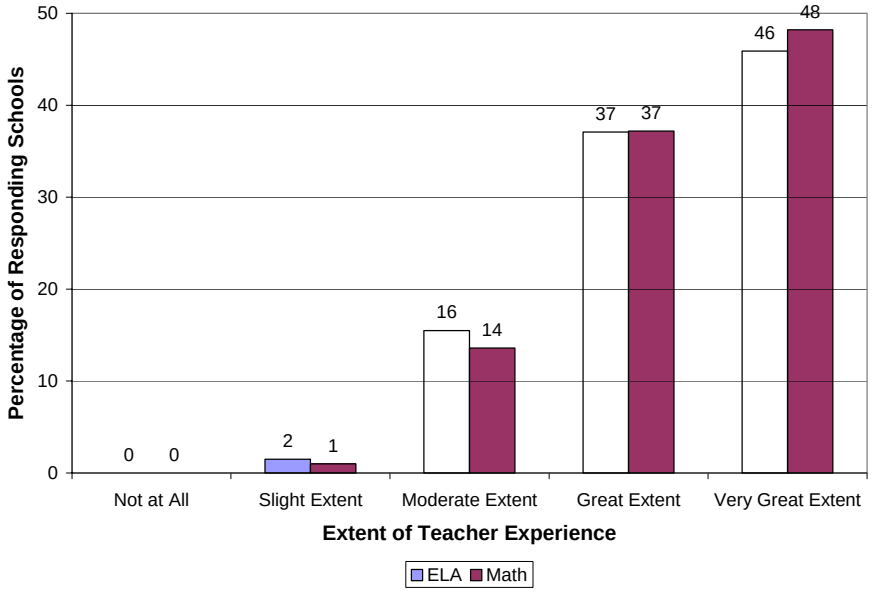


Figure 5.5. Percentage of high school ELA and math department chairs reporting various levels of teacher experience with teaching California content standards associated with CAHSEE (n_{ELA}=194; n_{Math}=199).

We analyzed these responses separately for schools with high concentrations of at-risk students to determine whether teacher experience teaching California content standards varied in any systematic way with student populations. Table 5.3 indicates the percentage of respondents rating their departments' teachers as having a great or very great level of experience. In both ELA and math, department chairs in schools with high concentrations of SD students rated a higher level of standards-based teaching experience than in schools with a low or moderate concentration of SD students. Schools with high concentrations of Hispanic or economically disadvantged students received lower ratings in both ELA and math department. Among schools with relatively high concentrations of African American students, ELA department chairs provided lower ratings than in schools with low/moderate concentrations of African American students, while math departments provided similar ratings regardless of student population.

Table 5.3. Teacher Experience With Teaching California Content Standards in Schools with High Concentrations of At-risk Students, According to High School Department Heads

Student Demographic Subgroup	School Group	Number of Responding Schools in High/Not High Group	Percentage of Department Heads Rating Great or Very Great Extent
ELA			
EL Students	Not High	143	83.9%
	High (> 27%)	43	81.4%
SD Students	Not High	131	81.7%
	High (>10%)	55	87.3%
Economically Disadvantaged Students	Not High	145	84.8%
	High (>60%)	41	78.0%
Hispanic Students	Not High	140	86.4%
	High (>60%)	46	73.9%
African American Students	Not High	153	84.3%
	High (>12%)	33	78.8%
Math			
EL Students	Not High	144	87.5%
	High (> 27%)	46	78.3%
SD Students	Not High	137	81.8%
	High (>10%)	53	94.3%
Economically Disadvantaged Students	Not High	145	88.3%
	High (>60%)	45	75.6%
Hispanic Students	Not High	138	87.7%
	High (>60%)	52	78.8%
African American Students	Not High	155	85.2%
	High (>12%)	35	85.7%

Professional Development

Professional Development—Surveys. The surveys asked principals to indicate what proportion of ELA and mathematics teachers participated in content-related professional development to help them teach the content standards associated with CAHSEE. Figures 5.6 and 5.7 report the responses for high school and middle schools, respectively. Comparison of the figures reveals two patterns. First, middle school teachers undertake more professional development activities than high school teachers; less than a third of high school principals report that nearly all teachers participated in this sort of professional development, as compared to well over 40 percent of middle school principals. Second, eleven percent of the middle school respondents indicated this was not applicable; it is not clear why this is so.

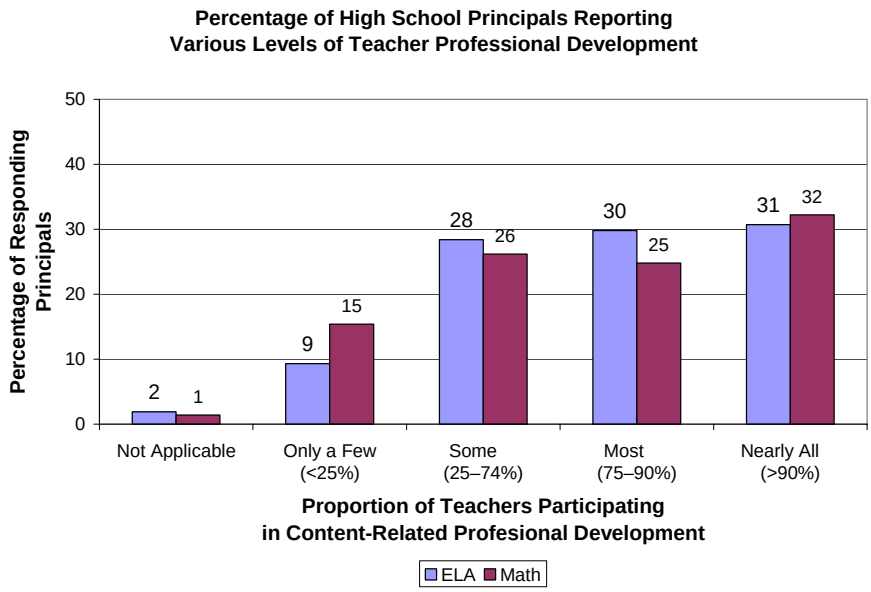


Figure 5.6. Percentage of high school principals reporting various levels of ELA and math teacher professional development to help them teach California content standards associated with CAHSEE (n=215).

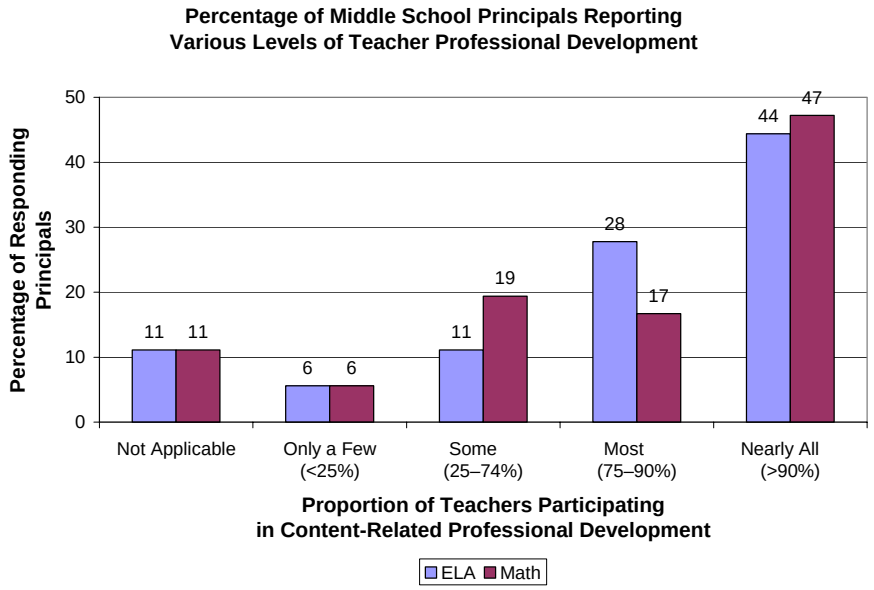


Figure 5.7. Percentage of middle school principals reporting various levels of ELA and math teacher professional development to help them teach California content standards associated with CAHSEE (n=36).

We analyzed high school professional development separately for schools with high concentrations of at-risk students. Table 5.4 indicates that a larger proportion of principals in schools with high concentrations of EL, SD, economically disadvantaged, and Hispanic students report that most or nearly all (at least 75%) of their ELA and math teachers participated in subject-related professional development designed to help them teach the California content standards associated with CAHSEE. On the other hand, 10–11 percent fewer schools with high concentrations of African American students reported this professional development, compared to schools with low or moderate African American student populations.

Table 5.4. Extent of Teacher Professional Development in Schools with Not High or High Concentrations of At-risk Students, According to Principals

Student Demographic Subgroup	School Group	Number of Responding Schools in Not High/ High Group	Percentage of Schools in Which Most/Nearly All (>=75%) Teachers Had Content-Related Professional Development
ELA			
EL Students	Not High	159	56.6%
	High (> 27%)	47	72.3%
SD Students	Not High	148	57.4%
	High (>10%)	58	67.2%
Economically Disadvantaged Students	Not High	157	59.9%
	High (>60%)	49	61.2%
Hispanic Students	Not High	151	58.3%
	High (>60%)	55	65.5%
African American Students	Not High	167	62.3%
	High (>12%)	39	51.3%
Math			
EL Students	Not High	159	51.6%
	High (> 27%)	47	72.3%
SD Students	Not High	148	54.1%
	High (>10%)	58	62.1%
Economically Disadvantaged Students	Not High	157	54.8%
	High (>60%)	49	61.2%
Hispanic Students	Not High	151	55.0%
	High (>60%)	55	60.0%
African American Students	Not High	167	58.1%
	High (>12%)	39	48.7%

The surveys asked how districts, schools, and/or teachers monitor and report student proficiency levels on content standards. Respondents were permitted to indicate multiple systems. Figures 5.8 and 5.9 list the reported systems for high schools and middle schools, in decreasing order of frequency. Both high schools and feeder schools rely most heavily upon district-based tracking systems. In high schools, a school-based tracking system ranked second, while tracking by individual teachers was more prevalent in feeder schools. Only two percent of high school respondents (and no feeder school respondents) indicated that no tracking system was in place.

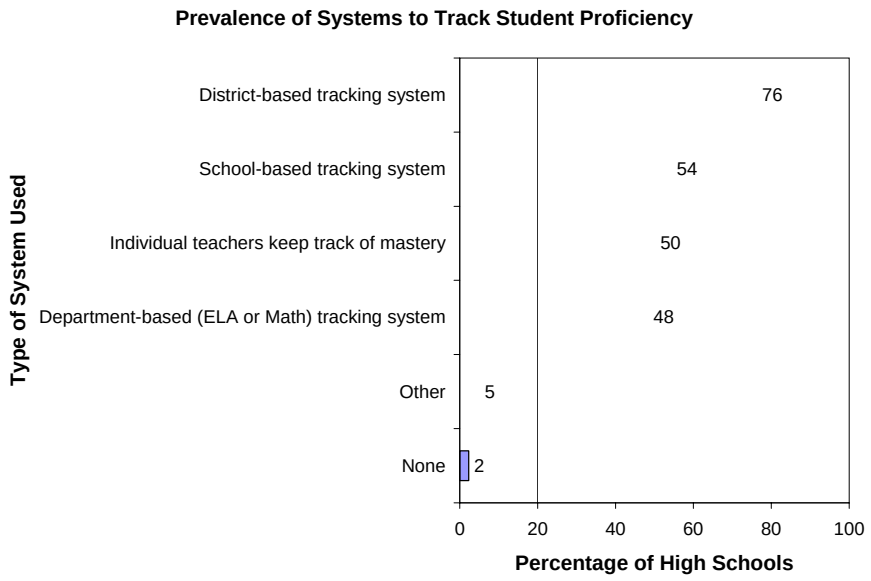


Figure 5.8. Methods for tracking student proficiency in content standards, according to high school principals.

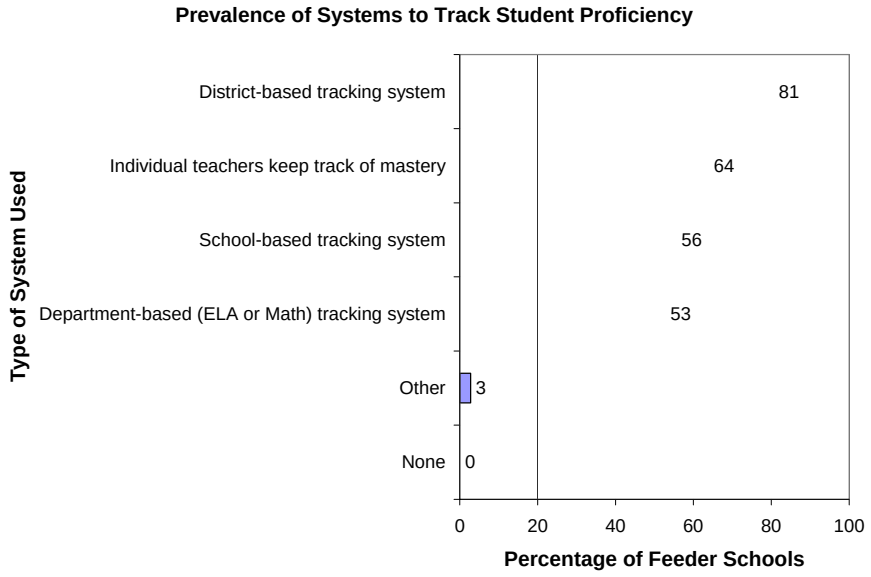


Figure 5.9. Methods for tracking student proficiency in content standards, according to middle school principals.

In the five percent of cases where high school principals indicated an “other” system was used to track student proficiency in content standards, they were asked to write in the method. Table 5.5 summarizes their responses. Most of these respondents indicated that tests and assessments were used.

Table 5.5. "Other" Systems Used by High School Principals to Monitor and Report Student Proficiency Levels on Content Standards

Informal and Formal Systems	Percentage % (*N*=15)
Test & Assessments	80.00
Standards	13.33
Special Education Tracking	13.33
Information Systems (Database)	13.33
English Language Development	6.67
Administrative Classroom Visits	6.67
Implementation	6.67
Instructional Coaches	6.67

Middle School Principals were asked to estimate the percentage of 8th grade students, who have, over time, completed various levels of math courses. Figure 5.10 indicates that a greater proportion of middle school students are taking Algebra than in previous years.

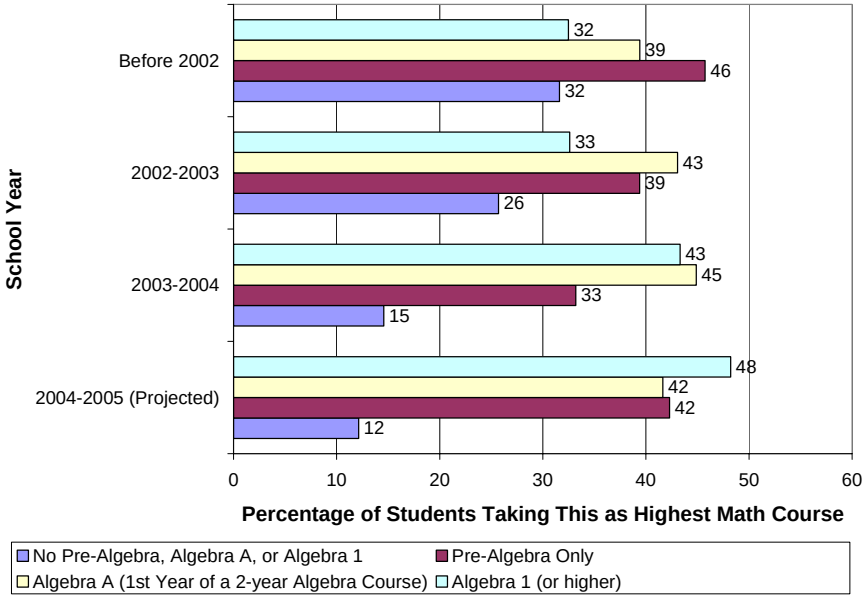


Figure 5.10. Highest math courses completed by eighth grade, according to middle school principals.

Demanding Courses

The instruction survey asked high school department chairs the extent to which they would rate their course offerings as being demanding courses for students, on a 5 point scale ranging from "not at all" to a "very great extent." Figure 5.11 shows response patterns for both ELA and math departments. Overall, math department chairs rated courses as more demanding than ELA department chairs, but for both groups a majority indicated their courses were (very) greatly demanding.

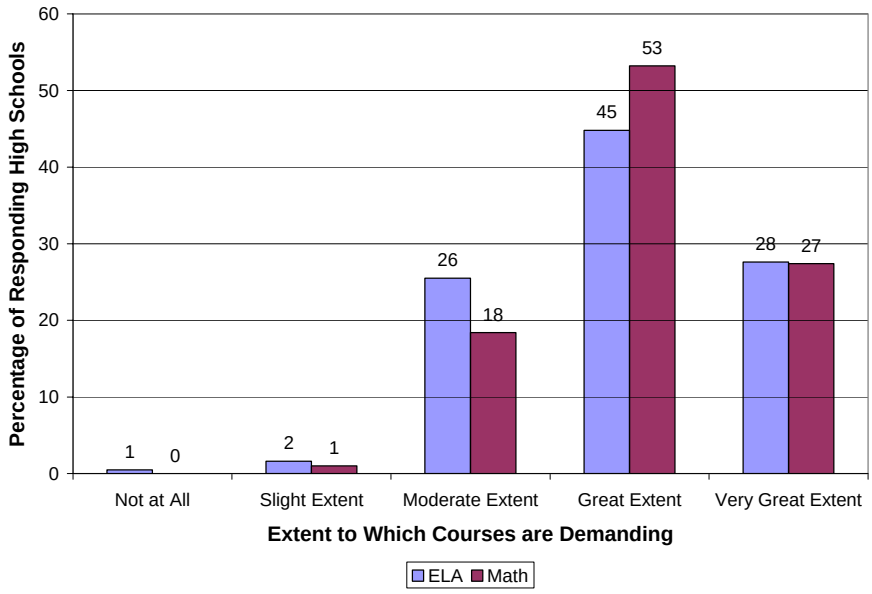


Figure 5.11. Extent to which high school department heads rate courses as demanding courses for students (n_{ELA}=192; n_{Math}=201).

We analyzed these responses separately for schools with high concentrations of at-risk students to determine whether the demanding nature of courses varied in any systematic way with student populations. Table 5.6 indicates the percentage of respondents rating their departments' courses as being demanding for students to a great or very great extent. In most cases, ELA and math department heads rated courses as more demanding in schools with low or moderate concentrations of at-risk students. The lone exception was that a slightly higher percentage of math courses in schools with relatively high concentrations of African American students were rated as demanding.

Table 5.6. Ratings of Courses as (Very) Greatly Demanding of Students in Schools with Not High or High Concentrations of At-risk Students, According to High School Department Heads

Student Demographic Subgroup	School Group	Number of Responding Teachers in Not High/High Group	Percentage of Department Heads Rating Great or Very Great Extent
ELA			
EL Students	Not High	141	73.8%
	High (> 27%)	43	67.4%
SD Students	Not High	129	72.9%
	High (>10%)	55	70.9%
Economically Disadvantaged Students	Not High	143	74.8%
	High (>60%)	41	63.4%
Hispanic Students	Not High	139	75.5%
	High (>60%)	45	62.2%
African American Students	Not High	151	76.2%
	High (>12%)	33	54.5%
Math			
EL Students	Not High	146	82.2%
	High (> 27%)	46	76.1%
SD Students	Not High	138	81.9%
	High (>10%)	54	77.8%
Economically Disadvantaged Students	Not High	147	83.7%
	High (>60%)	45	71.1%
Hispanic Students	Not High	140	84.3%
	High (>60%)	52	71.2%
African American Students	Not High	157	80.3%
	High (>12%)	35	82.9%

Information About Specific Courses

Teachers completed surveys describing a total of 2,690 high school and middle school courses or programs. Table 5.7 shows the breakout of courses by subject area for each school level.

Table 5.7. Number of Courses Covered with Survey Responses by School Level and Subject

School Level	ELA	Math	Total
Middle-Grade Feeder School	196	177	373
High School	1,188	1,129	2,317
Total	1,384	1,306	2,690

Each teacher survey provided information regarding a specific course. Courses were classified by subject (i.e., ELA or mathematics) and by course type (i.e., primary course taken by most students, a required alternative to the primary course targeted to a certain audience, a required supplemental course targeted to remediation, an elective course open to all students, an elective course targeted to remediation, or other). We also looked at whether the course was provided primarily to special education students (>75% of course enrollment), English learners (>75% of course enrollment), or students in general (the remaining courses). Table 5.8 shows the distribution of courses across these categories. Approximately 75 percent of courses overall enrolled a general population of students; 20 percent, mostly EL students; and under 5 percent, mostly students receiving special education services.

Table 5.8. Distribution of Courses by Subject, Type, and Students Served

Course Type	Number of Courses	Percentage of Courses with at Least 75% Special Population		
		English Learners	Special Education	General
High School ELA Courses				
Primary	822	11%	1%	88%
Alternative	147	51%	8%	41%
Supplemental/Remedial	88	40%	6%	54%
General Elective	10	20%	0%	80%
Remedial Elective	76	30%	8%	62%
Other	27	22%	22%	56%
Total	1,170	20%	3%	77%
High School Mathematics Courses				
Primary	711	14%	1%	84%
Alternative	187	14%	12%	74%
Supplemental/Remedial	105	19%	6%	75%
General Elective	25	8%	0%	92%
Remedial Elective	56	12%	5%	82%
Other	29	10%	21%	69%
Total	1,113	14%	4%	82%
Middle-Grade Feeder School ELA Courses				
Primary	132	12%	2%	86%
Alternative	30	67%	13%	20%
Supplemental/Remedial	20	45%	20%	35%
General Elective	2	0%	0%	100%
Remedial Elective	7	0%	14%	86%
Other	4	50%	0%	50%
Total	195	24%	6%	70%
Middle-Grade Feeder School Mathematics Courses				
Primary	143	20%	2%	78%
Alternative	18	6%	17%	78%
Supplemental/Remedial	8	62%	12%	25%
General Elective	0	0%	0%	0%
Remedial Elective	2	50%	0%	50%
Other	4	25%	25%	50%
Total	175	21%	5%	75%

Note: Percent totals may not equal 100 due to rounding.

Each teacher was asked to write in the name of the course they were describing in the survey responses. These handwritten titles were transcribed and coded into categories. Many of the courses had the same titles but were taught in different schools, possibly using different textbooks and/or covering different portions of the texts that were used.

Table 5.9 lists the courses identified by ELA teachers in order of descending frequency. For example, we received 302 surveys decsribing English 10 courses, 238 surveys describing English 9 courses, and so on. The English Language Development (ELD) course is a combination of English Learner; English Language Learning; and English as a Second Language courses. The Reading course entails the Reading Development and Read 180 classes.

Table 5.9. High School Teachers' Course and Instructional Program Title Frequencies: ELA

ELA Course Title	Number of Surveys Referencing This Course Title	Percentage of ELA Teacher Surveys (n=1,044)
English 10	302	28.93
English 9	238	22.80
English 11	105	10.06
Reading/ Literacy	85	8.14
ELD	78	7.47
English 12	76	7.28
Honors/AP/GATE	53	5.08
College Prep English 9,10,11,12	44	4.21
Lit. Composition	36	3.45
World Lit.	19	1.82
Language/ Language Skills	16	1.53
Special Education/Resource/ Remedial	14	1.34
Sheltered English	10	0.96
Lab/Learning Center	7	0.67
English 5 & 6	5	0.48
Developmental Reading SRA Reach Program	4	0.38
Writing	3	0.29
Linguistics	3	0.29
Developing Readers and Writers	2	0.19
Communications	2	0.19
Structured English Immersion	2	0.19
English Review	2	0.19
English Support	2	0.19
Humanities	2	0.19
English 7 & 8	2	0.19
English Seminar	2	0.19
Elements of Lit 6th Course	1	0.10
English Fundamentals	1	0.10
Ethnic Lit.	1	0.10
Standardize Test Prep	1	0.10
Essentials for English	1	0.10
Rhetoric & Writing	1	0.10
Intervention	1	0.10
Transitional ELA for non ELD Students	1	0.10
English Lit Integrated	1	0.10
Specially Designed Academic Instruction in English	1	0.10

Table 5.10 lists math courses. For ease of reading, the courses have been divided into three general areas: above Algebra, Algebra, and below Algebra. Courses within each area are listed in order of descending frequency.

Table 5.10. High School Teachers' Course and Instructional Program Title Frequencies: Math

Math Course Title	Number of Surveys Referencing This Course Title	Percentage of Math Teacher Surveys (n=1,013)
Above Algebra		
Geometry	102	10.07
Calculus (AB)	7	0.69
Trigonometry	4	0.39
AP Statistics	4	0.39
Honors/AP/GATE	9	0.89
College Preparation Algebra & Geometry	5	0.49
Algebra		
Algebra I	274	27.05
Beginning Algebra	99	9.77
Beginning Algebra Part I	73	7.21
PreAlgebra	70	6.91
Beginning Algebra Part II	59	5.82
Algebra	58	5.73
Algebra 2	57	5.63
Algebra A	44	4.34
Special Ed/ Resource/Remedial	41	4.05
Algebra B	39	3.85
Intermediate Algebra	33	3.26
Algebra Foundations	15	1.48
Algebra C	8	0.79
Algebra Concepts & Skills	8	0.79
Algebra Support	7	0.69
Algebra D	6	0.59
Algebra Essentials	6	0.59
ABC	5	0.49
Sheltered Algebra	5	0.49
Applied Algebra	5	0.49
Algebra Explorations	3	0.30
Algebra Fundamentals	3	0.30
Elementary Algebra	2	0.20
Algebra Preparation	2	0.20
Algebra Review	2	0.20
Structure & Method Algebra	1	0.10
Abstract Algebra	1	0.10
Below Algebra		
Basic/ General Math	24	2.37
Math Foundations	12	1.18
Intervention Programs	12	1.18
Integrated Math	9	0.89
Math Tutorial	9	0.89
Math Lab/Learning Center	7	0.69
Consumer Math	6	0.59

Table 5.10. (Continued)

Math Course Title	Number of Surveys Referencing This Course Title	Percentage of Math Teacher Surveys (n=1,013)
Math Concepts & Skills	5	0.49
Standard Deviants	5	0.49
Subject Area Teacher	5	0.49
Supplemental Math	4	0.39
Math Support	3	0.30
Math Explorations	3	0.30
Math Essentials	3	0.30
Math Proficiency Review	2	0.20
Interactive Math Programs	2	0.20
Math Analysis	2	0.20
After School Remediation	2	0.20
Introduction to Math	1	0.10
Applied Math	1	0.10
Real Life Math	1	0.10
Math Technical	1	0.10
Intermediate Math	1	0.10
Math Endeavors	1	0.10
Business Calculations	1	0.10
Introduction to Analysis	1	0.10
Career Based Math	1	0.10

We received some teacher surveys for courses that were neither math or ELA, directly. These courses are summarized in Table 5.11. These are reported separately for social studies, science, and other courses.

Table 5.11. High School Teachers' Course and Instructional Program Title Frequencies: Other

Course Title	Number of Surveys Referencing This Course Title	Percentage of All Teacher Surveys (*n*=2,208)
Social Studies		
World History	3	0.14
US History	2	0.09
American Government	1	0.05
Sociology Youth & Law	1	0.05
Resource	1	0.05
Total		*0.36*
Science		
Biology	4	0.18
Science Research Associates Reach Corrective	4	0.18
Chemistry	3	0.14
Physiology	1	0.05
Physics	1	0.05
Agricultural Biology	1	0.05
Family & Consumer Science`	1	0.05
Total		*0.68*

Table 5.11. (Continued)

Course Title	Number of Surveys Referencing This Course Title	Percentage of All Teacher Surveys (*n*=2,208)
Other Courses		
Tutorial & Counseling	9	0.41
College Preparation	6	0.27
Health	4	0.18
Spanish/Foreign Language	3	0.14
Art	3	0.14
Computers	2	0.09
Business Core	2	0.09
AVID	2	0.09
Basic Living Skills	1	0.05
Title I	1	0.05
Math Coach	1	0.05
Film Appreciation	1	0.05
Special Ed	1	0.05
CMC Level E	1	0.05
Agricultural Mechanics	1	0.05
After school course for credit	1	0.05
Fine Arts	1	0.05
After School Programs	1	0.05
Vocational ED	1	0.05
Total		*1.63*

Teacher Assignments by Course Type

The high school teacher survey asked teachers to report their highest level of education and total years of experience. We analyzed these responses by the type of courses the teachers taught to determine whether they were differentially assigned to courses. Figure 5.12 details teacher education level by course type for both ELA and mathematics courses. In order to improve readability, only the four most prevalent course types were included; general elective and “other” courses were omitted. The chart is organized with higher levels of education appearing on the left, with incrementally decreasing amounts of experience to the right. For example, one percent of the teachers who responded to surveys for an ELA primary course hold a doctoral degree; 45 percent have a master’s degree, and so on. Among ELA courses described in the survey responses, a greater proportion of teachers of remedial elective courses have advanced degrees. Among mathematics courses, the distribution of teacher education in supplemental remediation courses closely parallels that of primary courses.

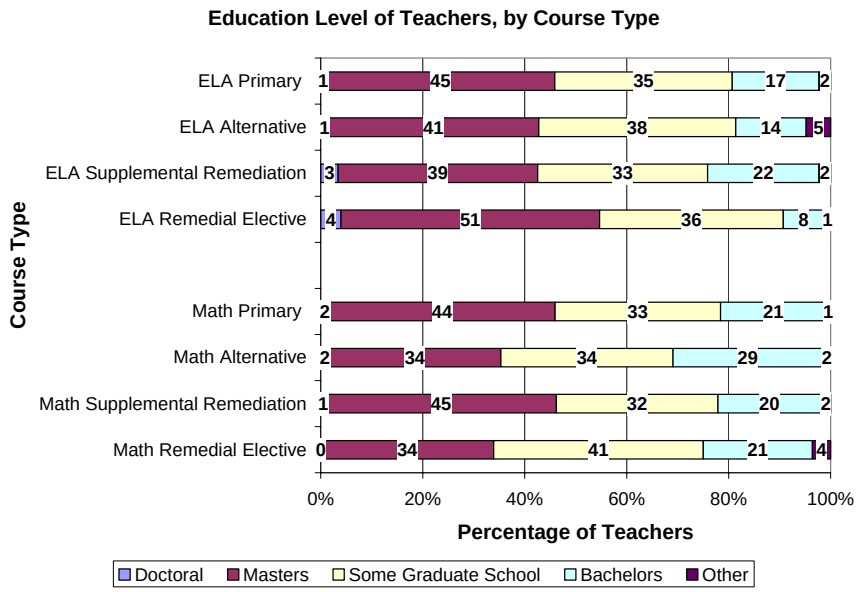


Figure 5.12. Education levels of teachers by course type.

Figure 5.13 investigates the assignment of teachers to course type as a function of years of teaching experience. The chart is organized such that greater experience levels appear to the left, with decreasing amounts of experience to the right. For example, 23 percent of the teachers who responded to surveys for an ELA supplemental remediation course have more than 20 years of experience; 45 percent have at least eleven years of experience (i.e., 23% over 20 years plus 22% 11–20 years).

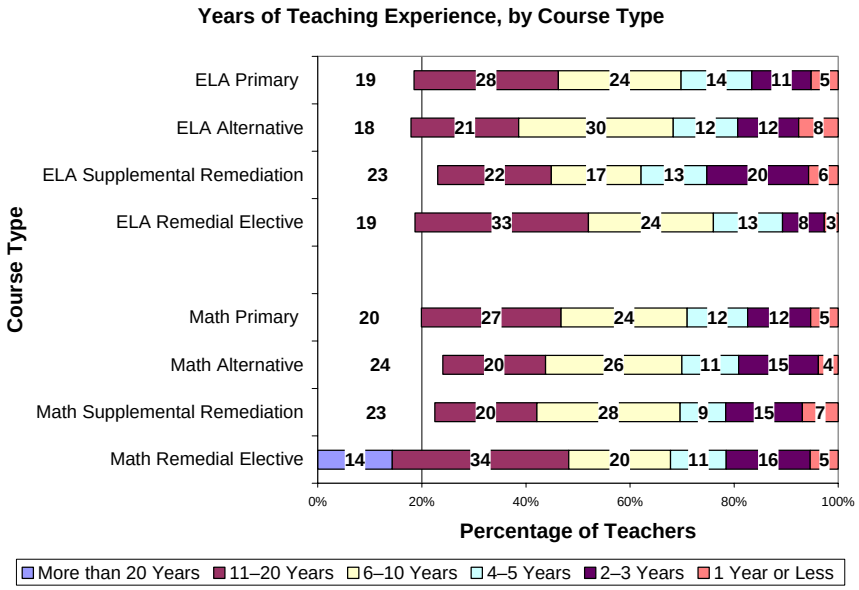


Figure 5.13. Years of teaching experience by course type.

Course Timing and Duration

For each course or instructional program, the teacher responding to the survey was asked to indicate when the course/program was offered. Respondents were asked to mark all offerings that applied to a given course. Table 5.12 reveals that the vast majority of courses are offered during normal school hours, although a substantial percentage of primary, alternative, and supplemental remedial courses are also offered during the summer. Remedial courses—both supplemental and elective—are also prominently offered before or after regular school hours.

Table 5.12. Percentages of High School Course Offerings by Course Type

Course Type	When Course Is Offered					
	Before/ After School	Summer School Course	Summer Program	During Normal School Hours	Intercession Breaks	Other
Primary (*n*=1,559)	3%	18%	3%	99%	1%	1%
Alternative (*n*=337)	2%	13%	1%	99%	1%	1%
Supplemental/Remedial (*n*=197)	11%	10%	2%	94%	1%	0%
General Elective (*n*=42)	5%	0%	0%	90%	0%	2%
Remedial Elective (*n*=134)	9%	9%	1%	91%	0%	1%
Other (*n*=60)	2%	8%	3%	88%	0%	5%

Note: Percentages do not total 100 because teachers could identify multiple offerings for a single course.

We analyzed before/after school programs and summer school offerings (i.e., courses and programs, combined) separately for schools with high concentrations of at-risk students. Table 5.13 reports the percentage of teacher surveys representing courses that were offered outside of normal school hours. These results should be interpreted with caution, because multiple courses are offered within individual schools and these surveys do not represent all courses. Generally, the rates of before/after school and summer school courses were close regardless of student population. However, some differences exist. In order to facilitate interpretation of this table, percentages were bolded in cases where the high-concentration group's percentage was lower than the comparison group's and italicized in cases where the high-concentration group's percentage was higher than the comparison group's. In schools with high concentrations of EL, economically disadvantaged, Hispanic, and African American students, a slightly lower percentage of ELA and math courses were offered during summer school. In schools with high concentrations of SD students more ELA summer school courses were offered but virtually the same rate of math courses.

Table 5.13. Before/After School and Summer School Offerings in Schools with Not High or High Concentrations of At-risk Students, According to Teachers

Student Demographic Subgroup	School Group	Number of Responding Teachers in Not High/ High Group*	Percentage of Courses Offered Before/After School	Percentage of Courses Offered in Summer
ELA				
EL Students	Not High	855/856	2.7%	**16.4%**
	High (> 27%)	293/294	2.7%	**10.5%**
SD Students	Not High	804/806	**3.1%**	*14.1%*
	High (>10%)	344	**1.7%**	*16.6%*
Economically Disadvantaged Students	Not High	861/862	*2.3%*	**15.3%**
	High (>60%)	287/288	*3.8%*	**13.5%**
Hispanic Students	Not High	848/850	*2.5%*	**15.5%**
	High (>60%)	300	*3.3%*	**13.0%**
African American Students	Not High	936/938	**2.9%**	**15.0%**
	High (>12%)	212	**1.9%**	**14.2%**
Math				
EL Students	Not High	832	*3.6%*	**22.6%**
	High (> 27%)	252	*5.6%*	**18.3%**
SD Students	Not High	761	*3.2%*	21.7%
	High (>10%)	323	*6.2%*	21.4%
Economically Disadvantaged Students	Not High	856	*3.6%*	**22.3%**
	High (>60%)	228	*5.7%*	**18.9%**
Hispanic Students	Not High	818	**4.2%**	**22.7%**
	High (>60%)	266	**3.8%**	**18.0%**
African American Students	Not High	866	**4.2%**	**21.8%**
	High (>12%)	218	**3.7%**	**20.6%**

* Where two numbers appear, the first number indicates the number of respondents who answered the before/after school question; the second number indicates the number of respondents who answered the summer school question. A single number indicates the same number of respondents to both questions.
Note. Paired numbers in **bold** indicate the high-concentration group percentage is smaller than the comparison group's; *italics* indicate the high-concentration group percentage is larger than the comparison group's.

Teachers were asked to indicate the duration of the course described in their survey responses. Table 5.14 shows that a large majority of these courses are offered for a full school year. Percentages in excess of 20 percent have been bolded to facilitate interpretation of the table. Over a quarter of remedial elective courses are one semester in length, as are nearly a fifth of supplemental remedial courses.

Table 5.14. Durations of Courses/Programs by Course Type

Course Type	Course Duration				
	Few Weeks	Quarter	Trimester	Semester	Full School Year
Primary (*n*=1,551)	1%	1%	0%	11%	**87%**
Alternative (*n*=337)	1%	0%	0%	8%	**91%**
Supplemental/Remedial (*n*=196)	3%	2%	0%	19%	**77%**
General Elective (*n*=41)	10%	0%	2%	12%	**76%**
Remedial Elective (*n*=133)	4%	1%	0%	**28%**	**68%**
Other (*n*=60)	10%	5%	0%	8%	**77%**
Total (*n*=2,318)	1%	1%	0%	12%	**85%**

Student Populations within Courses

Teachers were asked to indicate the grade level at which the majority of students in this course or program are. Table 5.15 lists the percentage of respondents indicating each category. Percentages in excess of 20 percent have been bolded to facilitate interpretation. Freshmen and sophomores represent the majority of most course enrollments, with the exception of juniors/seniors in general electives (which only accounted for 42 of the 2,307 courses). This pattern held for both primary and remedial courses. Teachers indicated the total number of students they personally teach across all sections of the course in questions. Table 5.16 provides their responses.

Table 5.15. Majority Grade Level of Students, by Course

Course Type	Grade Level(s) of Majority of Students in This Course							
	9	9/10	10	10/11	11	11/12	12	Other
Primary (*n*=1,547)	**27%**	**23%**	**23%**	9%	7%	3%	4%	2%
Alternative (*n*=331)	**25%**	**22%**	14%	17%	6%	7%	2%	7%
Supplemental/Remedial (*n*=195)	**42%**	**23%**	7%	17%	7%	1%	0%	3%
General Elective (*n*=42)	10%	**26%**	2%	17%	7%	**29%**	5%	5%
Remedial Elective (*n*=134)	**40%**	19%	12%	12%	8%	6%	2%	2%
Other (*n*=58)	19%	**29%**	10%	9%	2%	10%	2%	19%
Total (*n*=2,307)	**28%**	**23%**	19%	11%	7%	4%	4%	4%

Table 5.16. Total Number of Students Enrolled, by Course

Course Type	Total Number of Students This Academic Year				
	10 or fewer	11–30	31–60	61–100	More than 100
Primary (*n*=1,555)	2%	10%	**24%**	**29%**	**35%**
Alternative (*n*=333)	2%	27%	**36%**	**22%**	13%
Supplemental/Remedial (*n*=195)	3%	**41%**	**33%**	11%	12%
General Elective (*n*=42)	2%	19%	**26%**	12%	**40%**
Remedial Elective (*n*=134)	4%	**32%**	**28%**	17%	19%
Other (*n*=60)	5%	25%	**30%**	15%	**25%**
Total (*n*=2,319)	2%	17%	**27%**	**25%**	**29%**

Course Materials

Teachers were asked whether they use a textbook for this course, and if so, when it was adopted. Table 5.17 indicates the responses to the textbook use and adoption year questions. Percentages in excess of 20 percent have been bolded to facilitate interpretation. Two patterns emerge. First, the bulk of textbook adoptions (37 percent) occurred before 2002, with a steady addition of 12–14 percent new books each subsequent year. Second, over a third of the remedial courses—both supplemental and elective—do not use a textbook for instruction.

Table 5.17. Textbook Use and Stability

Course Type	Do You Use a Textbook For this Course?					
	Yes					No
	Year School Adopted Textbook					
	Not Applicable	Before 2002	2002–2003	2003–2004	2004–2005	
Primary (*n*=1,557)	8%	**42%**	15%	15%	11%	8%
Alternative (*n*=334)	9%	**35%**	16%	16%	15%	10%
Supplemental/Remedial (*n*=197)	9%	19%	8%	10%	13%	**41%**
General Elective (*n*=42)	7%	**45%**	7%	7%	14%	19%
Remedial Elective (*n*=134)	12%	13%	15%	14%	10%	**37%**
Other (*n*=60)	13%	**30%**	17%	5%	5%	**30%**
Total (*n*=2,324)	9%	**37%**	14%	14%	12%	14%

Teachers were also asked to indicate the frequency with which they use any supplemental materials (i.e., other texts, commercially-prepared materials, and computer-based programs) in this course or instructional program. Response options were: daily, 2–3 times per week, weekly, monthly, or less than once per month/never. Figures 5.14 and 5.15 reflect responses of ELA and mathematics teachers, organized by course type. For ease of interpretation, two infrequent course types—elective courses open to all students and “other” courses—were omitted and responses were aggregated to indicate rates of weekly or higher.

The figures reveal a number of patterns. Two-thirds of ELA courses routinely use texts in addition to the course textbook, across all course types, while mathematics courses use them less frequently. ELA remedial courses—whether supplemental or elective—make higher use of commercially prepared materials than do primary and alternative courses. Commercially prepared materials are somewhat less prevalent in remedial math courses than in remedial ELA courses. In both ELA and mathematics, computer-based programs are used more frequently in remedial courses.

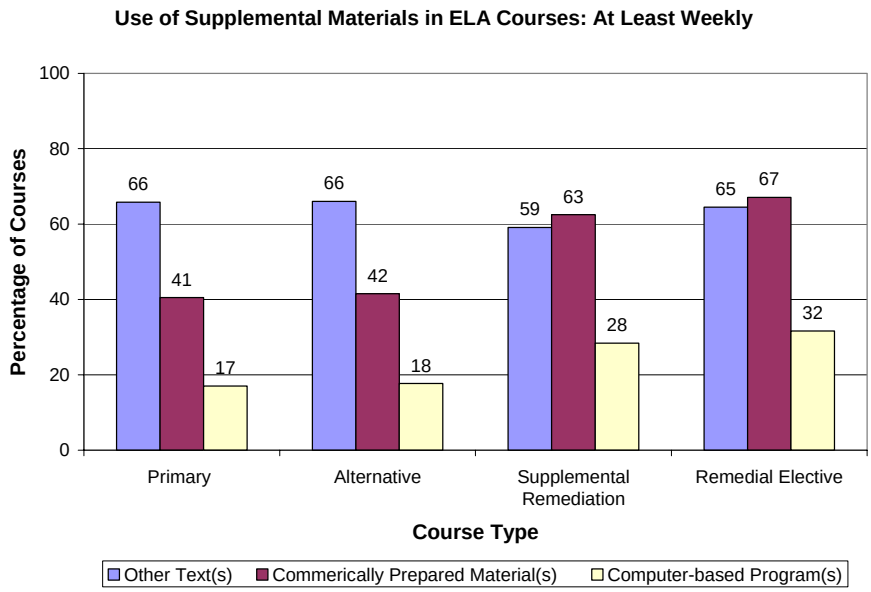


Figure 5.14. Percentage of ELA courses in which supplemental materials are used at least weekly.

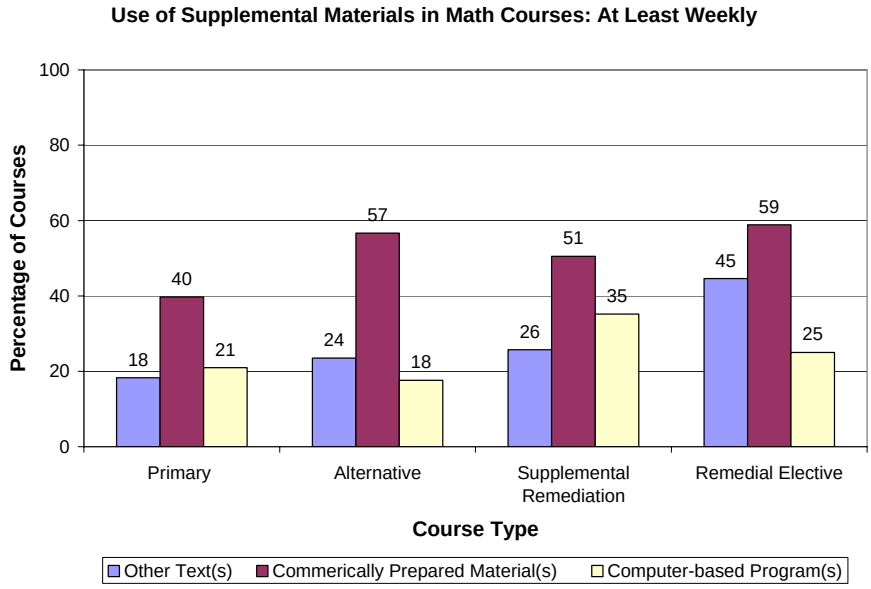


Figure 5.15. Percentage of mathematics courses in which supplemental materials are used at least weekly.

Teachers who reported use of supplemental materials were asked to write in descriptions of the materials and the reason they used them. Tables 5.18 and 5.19 contain the most frequently cited reasons identified by high school and feeder school teachers, respectively. Table 5.18 reveals that almost a third of these high school teachers use the materials because they believe that it will improve student performance. The teachers use diversity in teaching styles, modified assignments, and additional practice problems to make improvements to student learning. The teachers

also use scaffolding, analysis, and reinforcement skills to enable students to better comprehend and understand the lesson. Textbook supplements, such as novels, magazines, and newspapers are also used. Some high school teachers use supplemental materials as aids for national, state, and district level assessments. It is possible for teachers to have multiple reasons for using supplemental materials.

Table 5.18. Reasons for High School Teachers Using Supplemental Materials

Reasons	Percentage % (*N*=2,381)
Improvement	30.37
Comprehension	18.14
Motivate Students	10.67
Unsatisfactory Textbook	10.04
Reading and Writing Skills	6.85
Complement Curriculum	6.51
Enhance the Textbook	5.75
Text Supplements	3.36
Assessments, Testing, & Quizzes	2.39
Special Needs Students	2.18
Math Practice	1.60
Incorporate Technology	1.34
Source of Materials	1.30
English Learner	1.05

Table 5.19 indicates that the majority of middle school teachers surveyed use supplemental materials in their classrooms. Almost half of those teachers use the materials because they believe that it will improve student performance. The teachers use diversity in teaching styles, modified assignments, and additional practice problems to make improvements to student learning. The teachers also use scaffolding, analysis, and reinforcement skills to enable students to better comprehend and understand the lesson. Textbook supplements, such as novels, magazines, and newspapers are also used. Some middle school teachers are their own source for materials, by creating or purchasing them with their personal funds. It is possible for teachers to have multiple reasons for using supplemental materials.

Table 5.19. Reasons for Middle School Teachers Using Supplemental Materials

Teaching Credentials	Percentage % (N=335)
Improvement	45.37
Comprehension	22.99
Unsatisfactory Textbook	16.72
Motivate Students	14.63
Text Supplement	13.43
Reading and Writing	11.34
Complement Curriculum	9.55
Math Practice	4.48
Source of Materials	2.69
English Learners	2.39

Coverage of Targeted Standards

Researchers indirectly addressed this topic during site visit interviews, using discussion of the use of district pacing guides, curriculum maps, or common exams as evidence that schools and teachers are covering certain standards. In Questions 3 and 4 of the general education math and ELA protocol, for example, respondents were asked whether the California Content Standards are written into the curriculum and what ensures that those standards are actually being taught. Only 26 of 270 (10%) indicated that the standards were not written into their curriculum, with the remaining 244 indicating various “yes, written into curriculum” responses. These responses ranged from the most general, simply stating “yes” (65% of the total responses) to the most specific, giving an example of a document that charts the curriculum by standard (16% of the total responses). Other “yes” responses were the use of aligned textbooks (7%) and use of standards posted in the classroom or in student journals (2%).

General education teachers discussed a variety of methods that ensured they were covering the targeted standards. As they were free to describe as many methods as applied to their situation, the percentages given were determined by dividing the number of times a particular topic was mentioned by the number of actual respondents. The most frequently mentioned topics were the use of common exams (50%), observations by administrators or department heads (44%), use of aligned texts or pacing guides (21%), and department meetings at which standards are discussed (18%).

Nearly every special education teacher (41 of 45 who responded to the question) stated that standards were written into the curriculum. As with general education, the teacher’s most common response was some type of document that links the curriculum to a standard, such as a curriculum map or pacing guide. However, it is important to note that most of the respondents also provided a caveat that the standards are in some way different for special education or that the students are not at grade level.

EL teachers responded similarly to the special education teachers; all those responding stated that the standards were written into the curriculum. Additionally, several EL teachers provided a similar caveat that there are different standards for EL students; however, additional information as to how they differ was not provided.

At the school level, 100 percent of the 47 schools visited indicated that students were being taught the standards. Interviewees admitted varying levels of implementation at the school level, with some schools only recently beginning their efforts to align to the standards. Eight schools (17%) stated that their focus on the standards was initiated 2-3 years ago, roughly at the same time as when a formal discussion of the 2006 CAHSEE requirement began. Other schools mentioned standards alignment in different areas, including curriculum, instruction, and materials. For example, a given school that had not yet reached full implementation of the standards may have acquired and distributed standards-aligned materials, but still not have begun a coordinated effort to align instruction and/or curriculum. School-wide methods used to ensure student exposure to the standards included the posting of the standards in classrooms, daily school-wide standards-driven activities (e.g., “block days”), and the use of benchmark tests and pacing guides to direct and monitor student progress on the standards. Other responses focused on schools’ efforts to increase staff awareness of the standards. Examples of this ongoing emphasis on the standards included regular in-service meetings related to the standards, weekly/monthly teacher collaboration on the standards, daily monitoring of standards-based instruction by administrative staff, horizontal/vertical alignment of the standards, and the backward mapping of existing materials to the standards.

Remediation Programs Targeted to the CAHSEE

We conducted interviews with 80 administrators and 33 teachers of CAHSEE remediation or prep classes, often referred to in this report as special courses. We asked a series of questions in those interviews about changes to the school’s curriculum that are attributable to CAHSEE becoming a requirement for graduation. The following analysis is based on their responses:

Over half (52%) of administrators said they have implemented CAHSEE prep or remediation classes or tutoring for students who have previously not passed or are determined to be at-risk of not passing CAHSEE. We asked the administrators about the demographic makeup of these classes. Answers varied greatly depending on the demographic make up of the school; however, the major groups mentioned were EL, SD (special education), African American, Hispanic/Latino, and Asian student populations, as well as students with low socioeconomic status.

The classes are offered at different times in different schools, from during school to before and after school, and on Saturdays in some cases. Funding for these remediation and prep classes came from a variety of sources, such as local and state funding and Federal sources like Title 1 and NCLB grants. We asked whether students receive credit for remediation and prep classes. Over half the time (52%) teachers did

not respond to this question. Of the teachers who did respond, nearly all (94%) said that students did receive either math or English credit, or an elective credit.

Administrators and teachers of special courses agreed that demand is the same as last year, or has increased. A few schools reported that they have been able to reduce the number of sections of remediation or prep classes being taught because of higher CAHSEE pass rates; however, this was not typical. The curriculum for the class was chosen at either the school or district level. Curricula were either off-the-shelf or locally developed. Teachers usually received some training on the curriculum being used. Materials used in the classes were often the CAHSEE study guides. If another source was used for materials it was either off-the-shelf or teacher-made. Teachers typically volunteered, or were drafted to teach remediation or prep classes. Those who teach in the before and after school and Saturday programs often receive no extra pay. Some schools used a grant to pay teachers for their work in these programs.

We asked whether the special courses were doing what they were designed to do. According to administrators, they typically have not received data yet to determine gains being made. Anecdotally, they feel that the classes are helping students, but note that EL and SD students still struggle. Sample responses from administrators follow.

- We haven't received results yet, but students interviewed felt they did much better on the test this time.
- Seems like it anecdotally; teachers say understanding increases; kids crowd the classes, show up on Saturdays.
- For lower level students, no. For borderline, probably.
- Early results yes, bringing kids up.
- The program is functioning very well and is providing support to students and they are passing.
- If a student doesn't understand the language it is difficult for him to pass.
- Not dramatically, but it's probably better than not having the classes.

Targeted Programs for Students with Disabilities and English Learners

Throughout the discussions in various sections there have been sporadic comments or findings about programs that were targeted to special education and EL students. Hence, we have devoted a section of the report to this topic to make it easier for all readers to see what other schools are doing in this regard.

Both special education and EL teachers stated that the need is great for new and continued support classes, such as CAHSEE remediation, test preparation, and tutoring classes before and after school hours, including Saturdays. They further stated that those support classes should also be specifically geared to the special education or EL students. However, many did not specify exactly what those needs would be. A few teachers stated that the students need help with skills in general, or that they need additional help with math or reading, or a tailored curriculum for CAHSEE preparation.

Several teachers mentioned particular programs (off the shelf) or described some of the types of activities they are doing for their students. The following lists describe the activities for special education, followed by those geared to the EL student.

Special education:

- Several schools mentioned using “L!” (Language!) and “Read180” by Scholastic. One school mentioned that they used the “Language” program in the feeder schools, which has made a slight positive difference.
- There is a district-wide program (it wasn’t clear if it is only for special ed) to help students who are below level reach basic level. In each class, teachers target for very close monitoring 1-3 students who are having difficulty. Teachers chart their work and scores and collaborate with other faculty in meetings to help the students progress. They are seeing positive results from this effort.
- Several schools mentioned the need to widen their vocational tracks for those students who are not going to be able to pass the CAHSEE requirement.
- One school offered after-school tutoring and the SYLVAN program, but attendance was minimal.
- An after-school homework program was offered.
- One school allowed special education students to join the ESL classes because those teachers had expertise in language development.
- One teacher mentioned that, in addition to providing after-school tutoring, schools should provide funding for buses to transport students attending the tutoring.

EL:

- One school stated that it offers cultural diversity training and career night programs for parents and students.
- One school mentioned that it focuses on literacy by using the Special Review Assessment (SRA) corrective reading program.
- Two schools are providing newcomer programs for new immigrant students to help them adjust to life here, understand school programs and processes, learn what standardized tests are (some don’t know how to bubble-in answers), and to have access to translator services.
- Several schools stated they offered classes in subjects such as English and parenting.
- Several schools have college preparation programs to help parents as well as students.
- One school has collaborated with a community college to provide tutors for EL students.
- A school tries to help students through peer counseling, referring current students who are having difficulty to work with other students who are succeeding.

Exemplary Programs

One site visit goal was identification of exemplary programs—programs with which some schools have experienced academic success. While interviewers could not determine the degree to which these programs were properly implemented within a given school, they did find that all visited schools reported offering programs designed to meet the needs of students who had either been identified as at-risk or who had not passed the CAHSEE during previous administrations.

Interviewers obtained broad descriptions of the various strategies for addressing student achievement on CAHSEE, which ranged from formal school-wide programs to in-class strategies specific to the teacher. Interview protocols were designed to obtain general information about any formal programs, including the program name, the process for student selection for participation, representation among student subpopulations, length of time since initial implementation, whether or not students receive credit for participation, meeting times, funding, program development, materials, staffing, evaluation, and any anticipated changes. Obtaining complete information through these protocols was limited by the fact that interviewees were selected by the school and were not always the most knowledgeable about program specifics. Additionally, interviewers had a limited amount of time with teachers and a lengthy interview protocol. What can be concluded from the information collected is that schools, regardless of student performance levels on CAHSEE, are adding programs in order to address students' needs relative to CAHSEE. The types of programs discussed are similar in name, but are clearly being administered within widely different school environments, and with widely different results.

Evidence provides support for the premise that programs characterized as exemplary models for addressing student success on the CAHSEE have had an impact on recent CAHSEE scores. Schools that have experienced gains among 11th grade students (class of 2006) who had previously not passed the exam presumably have instituted remediation programs that work. Likewise, schools with high pass rates among current sophomores (class of 2007) are expected to have implemented high quality primary educational programs. In an effort to identify exemplary programs, we analyzed gain scores and pass rates of schools we visited. As described in Chapter 4 (see Tables 4.16 and 4.17), schools showing a mean school-level gain of more than 13 scale score points in Math or 17 scale score points in English-language arts were classified as large gain schools. Schools showing a mean school-level gain of 8 or fewer scale score points in Math or 11 scale score points in English-language arts were classified as small gain schools. Schools with "very low" pass rates are those schools with 50 percent or fewer students receiving a passing score. A "low pass" rate is more than 50 percent to 75 percent, "moderate" is more than 75 to 90 percent and a "high" pass rate is one in which more than 90 percent of tested students receive a passing score.

Schools exhibiting large gains in both English-language arts and mathematics, overall, as well as across the various NCLB-identified subpopulations, reported a strong focus on the standards and the regular use of benchmark tests to monitor student

progress. Intervention strategies targeting students identified as at-risk or in need of remediation at these schools included tutoring, summer classes, mandatory placement in special courses, slower paced courses, and additional subject-specific courses for students struggling in a specific area. These schools also reported improved preparation by their feeder schools. Schools posting small gains reported varying levels of standards implementation and student preparation, but described intervention strategies similar to those reported by the large gain schools. In addition to those strategies listed above, preparation and remediation courses offered during school hours and Saturday CAHSEE reviews were mentioned.

All schools, regardless of their level of gain on CAHSEE scores, reported taking measures to improve student achievement on CAHSEE. With limited understanding of actual program implementation, we analyzed demographic information for high gain and low gain schools in order to probe differences in the school environments into which programs are being introduced. Though variation exists among the group of high gain schools, all have small to medium populations of the various student subpopulations deemed at risk. All low gain schools, regardless of school size, have large populations of at least three of the identified subgroups. Schools' efforts to address students' needs may be limited by their higher proportions of students requiring intervention, resulting in lower overall gains on CAHSEE.

Schools categorized as "very low" in terms of their pass rate for the class of 2007 (<=50%) reported implementing numerous programs designed to meet the needs of students at risk or requiring remediation. CAHSEE-specific and/or general remedial courses are offered during regular school hours, as well as after school and on weekends. In addition, they mentioned offering Special Review Assessment (SRA) programs targeted to special education students and tutoring programs. Most of these schools reported using the CAHSEE study guide to prepare and remediate students. Schools with "high" pass rates (>90%) also reported providing numerous programs, including after-school and summer programs and individual tutoring.

A specific program mentioned among high pass rate schools was the Advancement via Individual Determination (AVID) program. Though the AVID program is being implemented in many schools, it is interesting to note its absence from the visited schools with the lowest CAHSEE pass rates. The AVID program, which by design places academically average students, who desire to attend college and are willing to work hard, into a course that focuses on study skills and academic assistance, depends on student motivation for its success. Schools with very low pass rates commonly reported low levels of student motivation, preparedness and ability, suggesting that AVID would have limited success with students targeted as at risk of not passing CAHSEE. Examples of relevant comments (these comments are not direct quotes) made by interviewees at very low performing schools include the following:

- Our particular population of students is not motivated to get a diploma.
- Incoming students are poorly prepared.
- I have kids who read at a low 5th grade reading level.

Students with such a low level of achievement and who lack a desire to achieve might not be well served by a program such as AVID.

Another mentioned program was the Student Success Team (SST), formerly known as the Student Study Team. Unlike AVID, SSTs target students who are struggling academically. The SST is an intervention strategy that draws on teachers, the student, his/her parents, and other school staff to meet as a team to identify and address an individual student's strengths and weaknesses and then develop a plan to assist the student in working through obstacles to that student's educational success. The SST strategy has been implemented as part of the larger SB 65 Motivation and Maintenance (M & M) program, but may also exist on a more informal level at schools that are not receiving M & M funds.

Three schools (two high schools and one feeder middle school) mentioned implementing the SST program. Both high schools had student populations of fewer than 700 students, moderate or high pass rates, and small to medium percentages of at-risk student populations. Because SST programs require relatively high levels of staff involvement, implementation at schools with large numbers of at-risk students and/or large student populations may be challenging. Additionally, SST programs require parental involvement while low-pass rates schools generally complain about a lack of parental involvement, especially with the students who have not passed the CAHSEE.

Similarities and differences exist in the strategies being implemented at schools on either end of the gain score and pass rate spectrums, but it would be difficult to attribute student success to any specific program or cluster of programs. Similar programs may have very different outcomes when administered by and for different groups of people. According to Michael Fullan in his discussion of difficulties in replicating models of educational reform, "…successful reforms in one place are partly a function of good ideas, and largely a function of the conditions under which the ideas flourished" (Fullan, 1999, p.64). This sentiment holds true for the schools visited where similar types of programs, when implemented in different school settings, were not having similar effects on students' CAHSEE performance. The degree to which these similar programs are comparable is not knowable at present, and would require more extensive evaluation of the specifics of each program. What is discernible from the evidence gathered is that schools report offering comparable, if only in name, services to their students.

Program quality and proper implementation along with the motivation of targeted populations, rather than the quantity and type of programs offered, may account for the difference between schools with high or low rates of student success on CAHSEE. High quality programs, when administered by a team of highly qualified and motivated educators to a population of motivated students with a desire to succeed, should have minimal chances of failure. Exemplary programs are those that meet students' needs and create positive change in a school's culture, ultimately leading to improved student outcomes. Such programs are not clearly identifiable at present. To distinguish them from other programs would require a thorough, formalized program evaluation.

Summary Findings

Clearly, the introduction of the CAHSEE has had a far-reaching effect on education in California. The survey and interview responses gathered during this evaluation cycle shed light on several aspects of education:

- Alignment of instruction to California content standards has increased steadily over the past several years at both the high school and middle school levels.
- The majority of visited schools identified efforts to ensure that the level to which content standards are being taught is consistent across teachers.
- High school department heads generally indicated their courses were demanding for students, although some differences were noted in schools with high concentrations of at-risk students.
- A majority of high school and middle school teachers have received content-related professional development.
- Nearly all high school and middle school respondents identified one or more systems used to track student proficiency in the content standards.
- Assignment of high school teachers to teach remedial courses closely paralleled—and in some cases, exceeded—the education level and years of experience of teachers in primary courses.
- Some exemplary programs (e.g., AVID, SST) were identified through site visit interviews. These may warrant further targeted evaluation to determine whether they would be effective in additional schools.

Chapter 6: Trends in Educational Achievement and Persistence During the Era of CAHSEE

Introduction

A high-stakes test such as the CAHSEE can have profound effects on the education system as a whole. Among the goals of a standardized graduation examination is to raise the bar for what young adults who hold a high school diploma know and can do; one of the dangers is that it may discourage struggling students. Since its inception, the CAHSEE has provoked predictions ranging from a surge in dropout rates to improved preparation for college.

Previous chapters in this report have addressed actual CAHSEE results as well as the impressions of district superintendents, district curriculum heads, principals, department heads, and teachers. This chapter investigates other data sources to determine trends that may be related to the CAHSEE. Specifically, we will look at enrollment trends over time for clues of changes in dropout rates, officially reported graduation and dropout rates, evidence of shifts in college preparation, and evidence of shifts in participation—and success—in Advanced Placement (AP) courses. In addition, we will report information provided by the students themselves as to their plans and expectations.

Enrollment Trends

A key question addressed in the independent evaluation of the CAHSEE is the impact of the new graduation requirement on dropout and graduation rates. Because no students have been denied diplomas directly because of inability to pass the CAHSEE as of this report, various proxies serve to estimate the effect. For example, while we cannot track individual students, overall enrollment figures provide an indication of the extent to which students in each grade do not proceed to the next grade with the rest of their classmates.

As reported in previous reports in this evaluation series (see Wise, et al., 2004), California enrollment rates have historically seen a sharp increase in 9th grade and a reduction in enrollment in each subsequent year. We refer to this enrollment decline after 9th grade as a “drop-off” in enrollment. The specific reasons for the grade 9 bubble and grade 10 drop-off are not readily measurable, although experts conjecture that some of the difference may reflect students who completed insufficient credits in the 9th grade to earn 10th grade status the following year. Some of the difference may indicate students who dropped out of school altogether.

Table 6.1 and Figure 6.1 show the decrease in enrollment from the 9th to the 10th grade for several recent years, going back far enough to precede the introduction of the CAHSEE. As noted in the 2004 evaluation report (Wise, et al., 2004) the 10th grade drop-off rate increased for the Class of 2006 (from 5.6% the previous year to 6.1%), primarily due to a larger than usual increase in the 9th grade enrollment. It was

hypothesized that more students were being retained in 9th grade. In the 2004–2005 school year, the drop-off rate declined somewhat to 5.9 percent.

Table 6.1. Enrollment Declines from 9th Grade to 10th Grade

School Year	High School Class	10th Grade Enrollment	Prior Year's 9th Grade Enrollment	Decrease	
				Number	Percent
2004–2005	2007	497,197	528,561	31,364	5.9%
2003–2004	2006	490,214	522,108	31,894	6.1%
2002–2003	2005	471,648	499,505	27,857	5.6%
2001–2002	2004	459,588	485,910	26,322	5.4%
2000–2001	2003	455,134	482,270	27,136	5.6%
1999–2000	2002	444,064	468,162	24,098	5.2%
1998–1999	2001	433,528	458,650	25,122	5.5%
1997–1998	2000	423,865	450,820	26,955	6.0%

Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

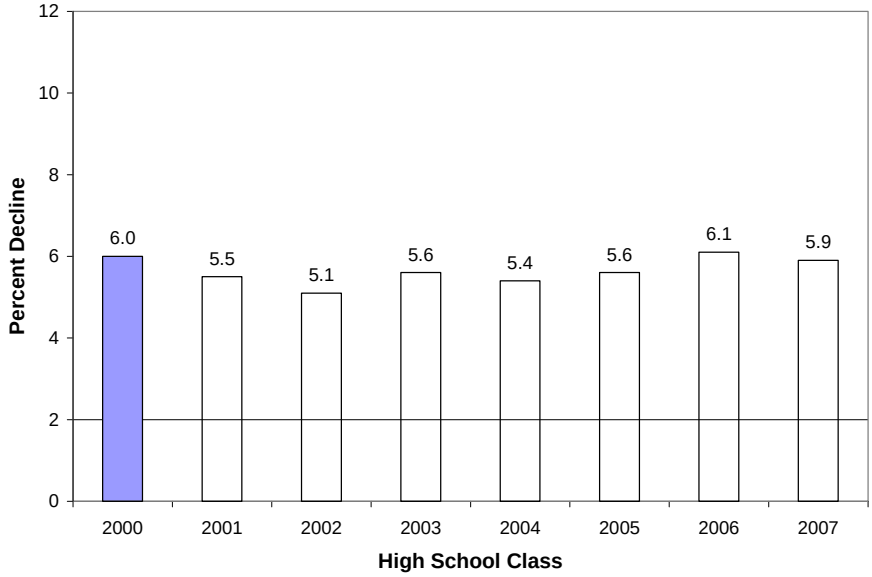


Figure 6.1. Enrollment declines from 9th to 10th grade by high school class.

Table 6.2 and Figure 6.2 show similar information for the drop-off between 10th and 11th grade enrollments. Results show that the drop-off rate between 10th and 11th grade enrollments continued the substantial decline begun with the Class of 2004.

Table 6.2. Enrollment Declines from 10th Grade to 11th Grade

School Year	High School Class	11h Grade Enrollment	Prior Year's 10th Grade Enrollment	Decrease	
				Number	Percent
2004–2005	2006	459,125	490,214	31,089	6.3%
2003–2004	2005	440,540	471,648	31,108	6.6%
2002–2003	2004	428,117	459,588	31,471	6.8%
2001–2002	2003	420,295	455,134	34,839	7.7%
2000–2001	2002	409,119	444,064	34,945	7.9%
1999–2000	2001	401,246	433,528	32,282	7.4%
1998–1999	2000	390,742	423,865	33,123	7.8%
1997–1998	1999	378,819	413,725	34,906	8.4%

Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

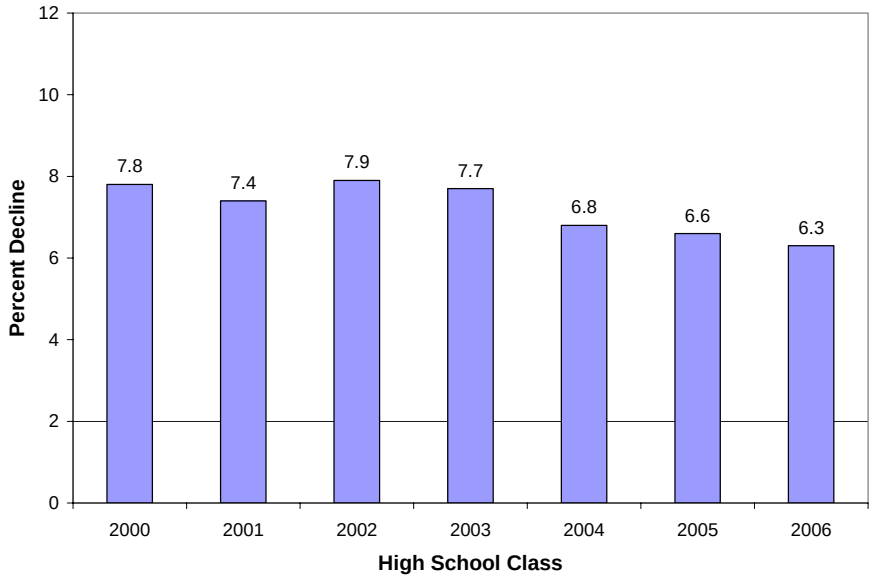


Figure 6.2. Enrollment declines from 10th to 11th grade by high school class.

Table 6.3 and Figure 6.3 show similar information for the drop-off between 11th and 12th grade enrollments. This rate decreased substantially (2.2 percentage points) with the Class of 2003. The reduced drop-off rate of the past two years has continued for the Class of 2005. Grade 11 enrollment figures for the Class of 2006 were not available at the time of this report.

Table 6.3. Enrollment Declines from 11th Grade to 12th Grade

School Year	High School Class	12h Grade Enrollment	Prior Year's 11th Grade Enrollment	Decrease	
				Number	Percent
2004–2005	2005	409,576	440,540	30,964	7.0%
2003–2004	2004	395,194	428,117	32,923	7.7%
2002–2003	2003	385,181	420,295	35,114	8.4%
2001–2002	2002	365,907	409,119	43,212	10.6%
2000–2001	2001	357,789	401,246	43,457	10.8%
1999–2000	2000	347,813	390,742	42,929	11.0%
1998–1999	1999	334,852	378,819	43,967	11.6%

Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

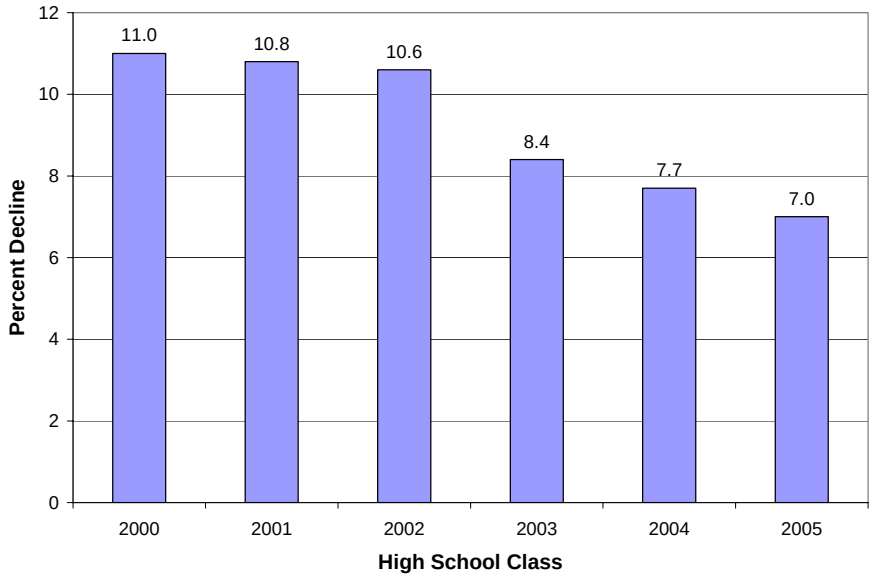


Figure 6.3. Enrollment declines from 11th to 12th grade by high school class.

Graduation and Dropout Rates

In addition to tracking enrollment trends for evidence of students dropping out of the system, we also investigated the California Department of Education's (CDE) official reports of dropout and graduation rates. Various approaches to the calculation of graduation and dropout rates have been under considerable scrutiny in public media recently, so multiple approaches are presented here. In fact, California revised its dropout calculation in 2003 to better align with rates reported by the National Center for Education Statistics (NCES). We will look first at CDE-reported single-year dropout rates and then at cumulative four-year dropout rates along with graduation rates as reported by CDE.

Single-year Dropout Rate

The CDE dropout calculation was modified in October 2003 to conform to guidelines issued by NCES. The current definition is provided in Figure 6.4 and the previous definition is provided in Figure 6.5 (Retrieved on 07/21/05 from http://data1.cde.ca.gov/dataquest/gls_drpcriteria.asp).

What criteria are used to define a dropout?

In October, 2003, the California Department of Education (CDE) adopted the National Center for Educational Statistics (NCES) Dropout definition. Following the new guidelines, the CDE now defines a dropout as a person who:

1. Was enrolled in grades 7, 8, 9, 10, 11 or 12 at some time during the previous school year **AND** left school prior to completing the school year **AND** has not returned to school as of Information Day.

OR

2. Did not begin attending the next grade (7, 8, 9, 10, 11 or 12) in the school to which they were assigned or in which they had pre-registered or were expected to attend by Information Day.

Exclusionary Conditions

For each student identified in the criteria above, the student is **not a dropout** if:

The student has re-enrolled and is attending school.

The student has graduated from high school, received a General Education Development (GED) or California High School Proficiency Examination (CHSPE) certificate.

The student has transferred to and is attending another public or private educational institution leading toward a high school diploma or its equivalent. (Does not include adult education programs unless the district can verify that these students are still enrolled in a GED or high school completion program on Information Day.)

The student has transferred to and is attending a college offering a baccalaureate or associate's program.

The student has moved out of the United States.

The student has a temporary school recognized absence due to suspension or illness.

The school has verified that the student is planning to enroll late (e.g., extended family vacation, seasonal work.)

The student has died.

Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

Figure 6.4. CDE explanation of dropout rate calculation as of October 2003.

Dropout Criteria

For years prior to 2002-03 the California Department of Education defined a high school dropout as a person who met the following criteria:

- was formerly enrolled in grades 7, 8, 9, 10, 11, or 12
- has left school for 45 consecutive school days and has not enrolled in another public or private educational institution or school program
- has not re-enrolled in the school
- has not received a high school diploma or its equivalent
- was under twenty-one years of age
- was formerly enrolled in a school or program leading to a high school diploma or its equivalent

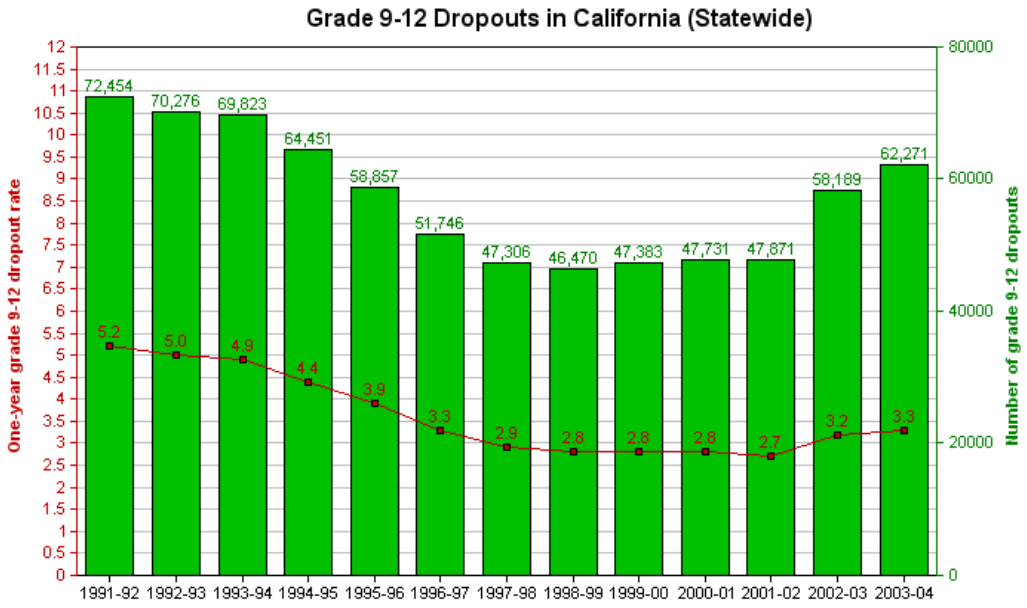
This includes students who have moved out of the district, out of state, or out of the United States and are not known to be in an educational program leading toward a high school diploma or its equivalent.

Districts are also responsible for determining the status of their "no-show" students. "No-shows" are students who completed a grade, but did not begin attending the next grade the following year.

Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

Figure 6.5. CDE explanation of dropout rate calculation prior to October 2003.

The official CDE dropout counts for single-year dropouts are displayed in Figure 6.6. The figure is reproduced here from the CDE website. The single-year dropout calculation derives the total number of dropout students from grades 9–12 as a percentage of the total grade 9–12 enrollment in a single school year. The bars in Figure 6.6 indicate the number of students who dropped out and the line graph indicates the dropout rate. According to the state's public Web site information, dropout rates have increased each school year from a low in 2001–2002. The reader is reminded that the definition of dropouts changed in 2002–2003, so direct comparison across that time boundary is tenuous. However, the last two school years depicted in the chart both used the same metric, reflecting an increase of 0.1 percentage points in the single-year dropout rate, from 3.2 percent to 3.3 percent. As of the writing of this report, statistics for school year 2004–2005 were not yet available.



Source: http://data1.cde.ca.gov/dataquest/DropStateGraph.asp?Level=State on 08/17/05

Note. In 2002–03 the California Department of Education started using the National Center for Education Statistics (NCES) dropout criteria. 1 Year Grade 9–12 Dropout Rate Formula: (Gr. 9–12 Dropouts/Gr. 9–12 Enrollment)*100

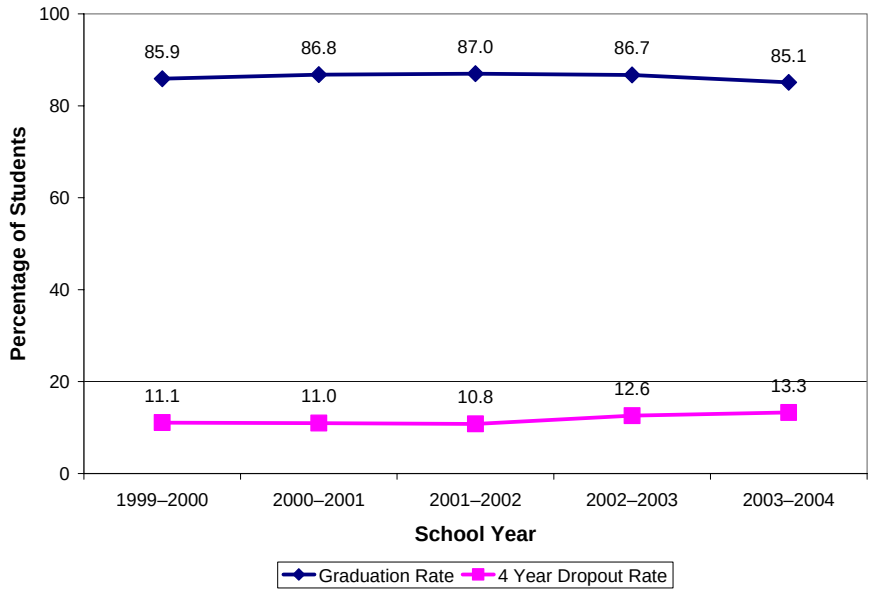
Figure 6.6. Dropout rates according to CDE.

Cumulative Four-year Dropout Rate and Graduation Rate

Another common dropout metric is a cumulative four-year dropout rate. This accounts for students within a class cohort who drop out, over time, at the 9th, 10th, 11th, or 12th grade level. This rate more closely reflects what the public perceives as the meaning of dropping out of high school.

Figure 6.7 displays two series of official CDE rates: four-year dropout and graduation. The dropout rate is calculated as the number of students in a cohort class who dropped out in grade 9, 10, 11, or 12, as a percentage of the 9th grade entering school population. The graduation rate is based upon the NCES definition: the numerator is the number of graduates in Year 4 and the denominator is the sum of the number of graduates in Year 4, plus the dropouts in grades 9–12.

Inspection of Figure 6.7 reveals that both rates shifted slightly in school years 2002–2003 and 2003–2004. Over these two years the graduation rate has dropped by 1.9 percentage points and the dropout rate has increased by 2.5 percentage points. Neither of these rates reflects the Class of 2006, which will be the first class subject to the CAHSEE requirement. Therefore any effect of the CAHSEE cannot be determined at this point, but the tracking of these rates over time will provide a context when the Class of 2006 reaches graduation time.



Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

Figure 6.7. Graduation and dropout rates.

College Preparation (SAT/ACT/UC & CSU courses)

Indicators of educational quality include the rigor of coursework undertaken in high school, as well as the proportion of students intending and prepared to engage in postsecondary education. We turn now to two sets of indicators (other than the CAHSEE) of student preparedness for college.

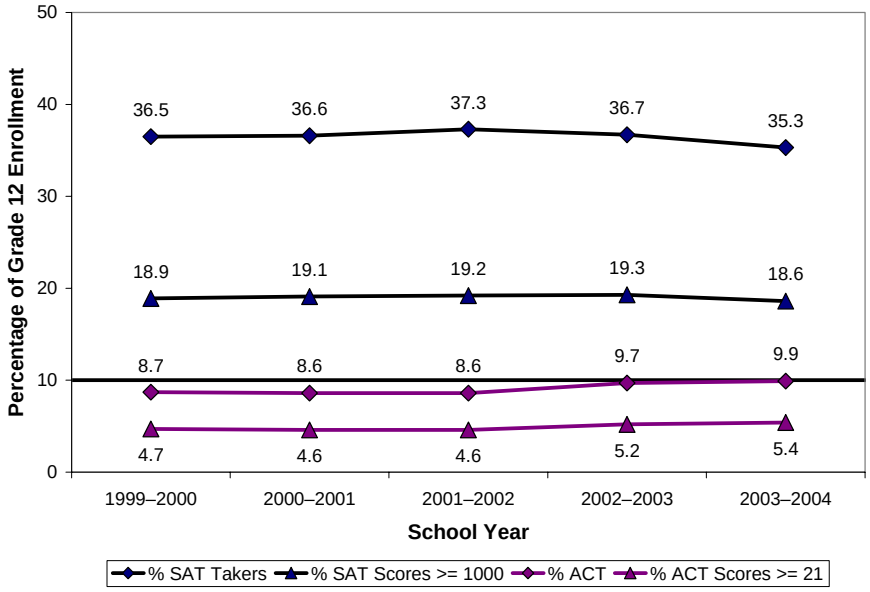
College Entrance Examination Participation and Performance

The level of student engagement in education (and aspirations for further education) is reflected in the proportion of students who sit for college entrance examinations. College readiness can also be examined by looking at the performance of students who take such tests. These two factors are confounded, in that higher participation may be related to lower scores overall. For example, if only a small, high-performing proportion of a class takes an exam, scores will be high but participation will be low. If a higher number of students, who may be less high performing, are encouraged to test, the average scores will drop but participation rates will increase. Interpretation of patterns requires judicious care because of this confounding effect.

Two examination programs are prevalent in the United States: the SAT and the ACT. Figure 6.8 indicates the percentage of California students participating in these two examination programs. The lines with diamond-shaped markers represent the proportion of the grade 12 class who took either the SAT or ACT. Approximately 35 percent of the Class of 2004 took the SAT and almost 10 percent took the ACT. The percentage of seniors taking the SAT dropped slightly in the last two years available

here, from 37.3 percent to 35.3 percent.[9] ACT participation increased somewhat, from 8.6 percent to 9.9 percent, over that same period.

Figure 6.8 also shows the percentage of students who achieved a particular score on these two exams, over time. These cut points are used for reporting on the CDE website and hence are used here. The lines with upward-arrow pointers reflect the percentage of students achieving a minimum combined score of 1000 on the SAT or 21 on the ACT, respectively.[10] The percentage of California students reaching an ACT score of at least 21 has increased over time, reaching its highest level within this timeframe (1999–2000 to 2003–2004) of 5.4 percent in the 2003–2004 school year. On the other hand, the percentage of students reaching at least 1000 on the SAT was at 18.6 percent, its lowest level in this 5-year timeframe, in the 2003–2004 school year.



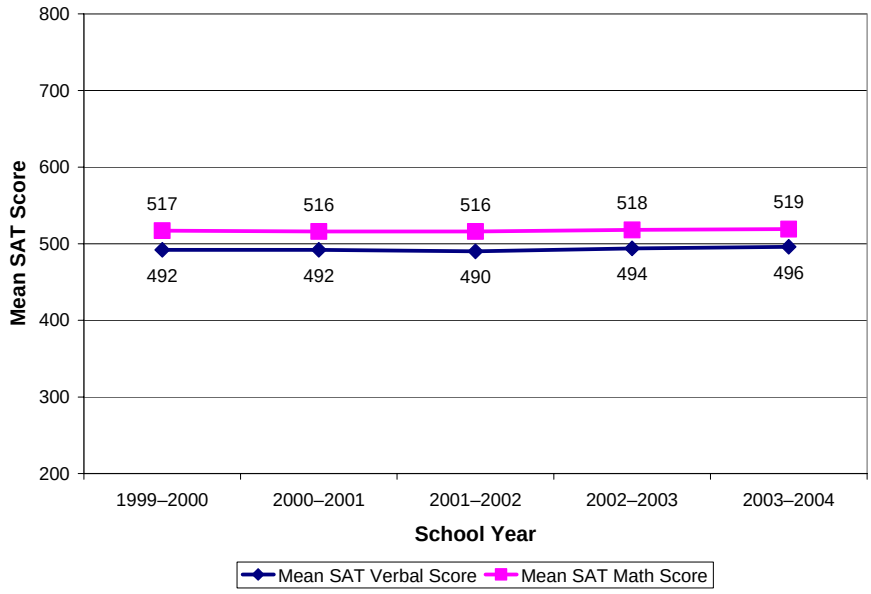
Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

Figure 6.8. SAT and ACT participation rates and success rates over time.

Another metric to assess success on tests such as the SAT and ACT is to look at mean scores. Figure 6.9 indicates that mean SAT math and verbal scores have steadily, albeit slowly, increased each year since 2001. Figure 6.10 shows a similar pattern of increasing mean scores on the ACT exam.

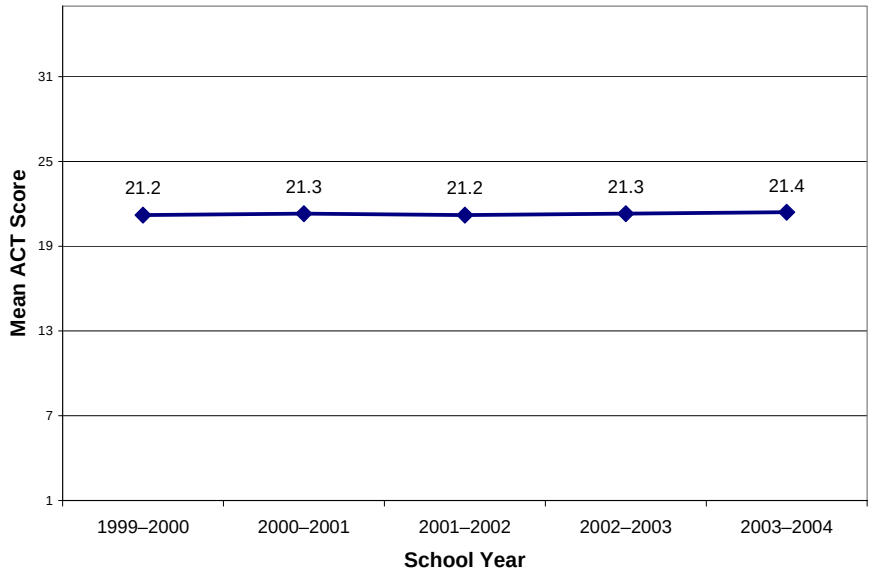
[9] The College Preparation Partnership Program (CPPP) was in effect from 1999–2003. The program was established by SB 1697 to provide access to preparation courses for SAT and ACT to students in qualifying highs schools. Grants were awarded to high schools to fund training with reimbursement once students took the SAT I. Student participation in this program dropped somewhat in 2002–2003 (from 19,684 the previous year to 14,823) and the program ended in 2003. The effects of this program's activities and termination may account for some of the test-taking trends seen in Figure 6.8.

[10] The national rank for a combined SAT score of 1000 is the 45th percentile. The national rank for an ACT Composite score of 21 is the 57th percentile.



Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

Figure 6.9. SAT mean math and verbal scores over time.



Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

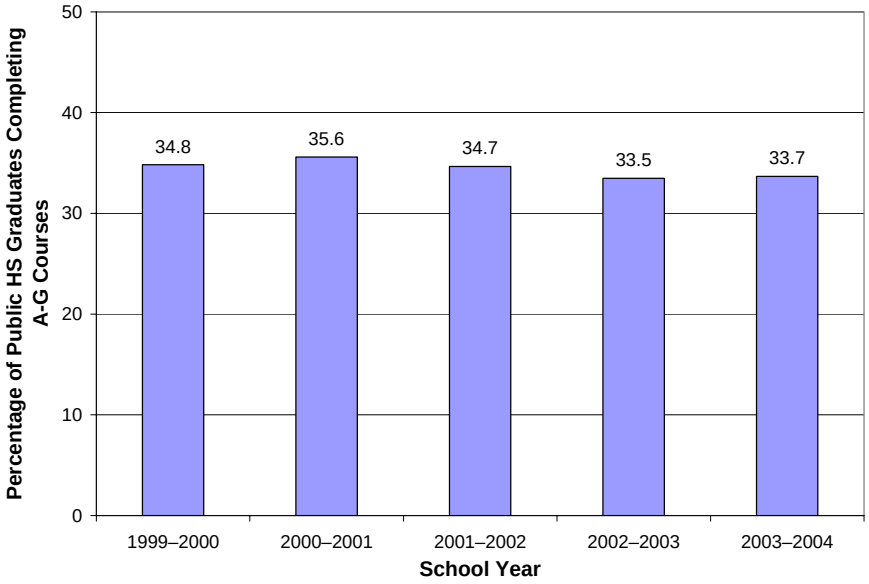
Figure 6.10. ACT mean scores over time.

College Preparatory Coursework

Another indicator of educational quality is the caliber of coursework completed. Two of California's statewide university systems, the University of California and the California State University, have developed a list of courses known as "A–G courses" that are required for incoming freshmen. This list includes 16 units of high school

courses, of which at least seven must be taken in the last two years of high school. In this system, a unit represents a full year—or two semesters—of study.

Figure 6.11 indicates the percentage of public high school graduates who completed A–G courses over several years. The rate has held fairly steady at about a third of the graduating class each year. There has been a slight decrease since a peak in 2001. The most recent data available on the California Postsecondary Education Commission (CPEC) website references the Class of 2004; 33.7 percent of this class completed the A–G courses.



Source: California Postsecondary Education Commission website (www.cpec.ca.gov)

Figure 6.11. A–G course completion over time.

The CPEC website provides a variety of breakdowns of the A–G course completion information. While Figure 6.11 depicts rates of course completion as a percentage of high school graduates, Table 6.4 reports these rates as a percentage of freshman enrollment four years earlier. This table also provides a breakdown by race/ethnicity and gender. For example, the number of Black males completing A–G courses in the Class of 2004 was 11 percent of the number of Black male freshmen in 2000–2001.

Table 6.4. A–G Course Completions as a Percentage of Freshmen Four Years Earlier, by Race/Ethnicity and Gender

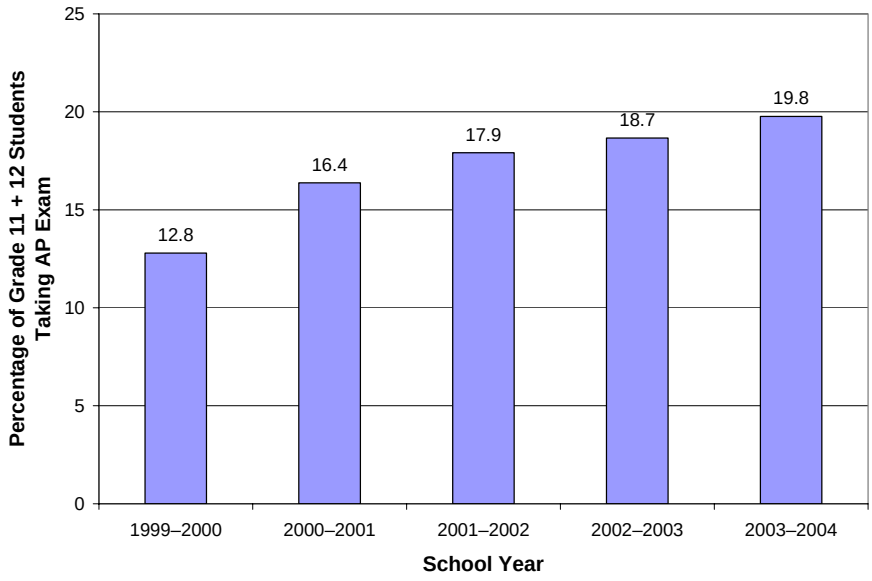
Ethnicity	Gender	Graduation Year (Class)				
		2000	2001	2002	2003	2004
Black	Male	12%	11%	11%	11%	11%
	Female	18%	18%	19%	19%	19%
Native American	Male	13%	12%	14%	15%	16%
	Female	18%	19%	19%	20%	20%
Asian	Male	45%	45%	45%	45%	45%
	Female	56%	57%	57%	57%	59%
Pacific Islanders	Male	15%	17%	17%	17%	19%
	Female	20%	21%	23%	24%	23%
Latino	Male	10%	10%	10%	10%	10%
	Female	15%	16%	16%	16%	17%
White	Male	27%	27%	26%	26%	26%
	Female	35%	36%	36%	36%	37%
Filipino	Male	33%	33%	32%	35%	35%
	Female	47%	48%	46%	48%	49%
Overall		24%	24%	24%	24%	24%

Note. Data retrieved from http://www.cpec.ca.giv/accountability/atogreport.asp on August 18, 2005. Race/ethnicity designations differ from the rest of this report but mirror those on the CPEC website.

AP Test Achievement

The College Board's Advanced Placement (AP) program comprises a set of college-level courses offered in high school. Students have the option of taking a standardized AP examination after completing the course to earn college credit and/or gain placement in advanced college courses. AP exam participation rates and scores are indicators of high school course rigor as well as college-going intentions. The College Board currently offers 34 AP courses and exams over 19 subject areas, but not all courses are offered at all high schools.

Figure 6.12 displays AP examination participation rates among California students over time. Each bar represents the percentage of juniors and seniors taking at least one AP exam in a given school year. The rates increased every year between 1999–2000 and 2003–2004, the most recent year available on the CDE website.

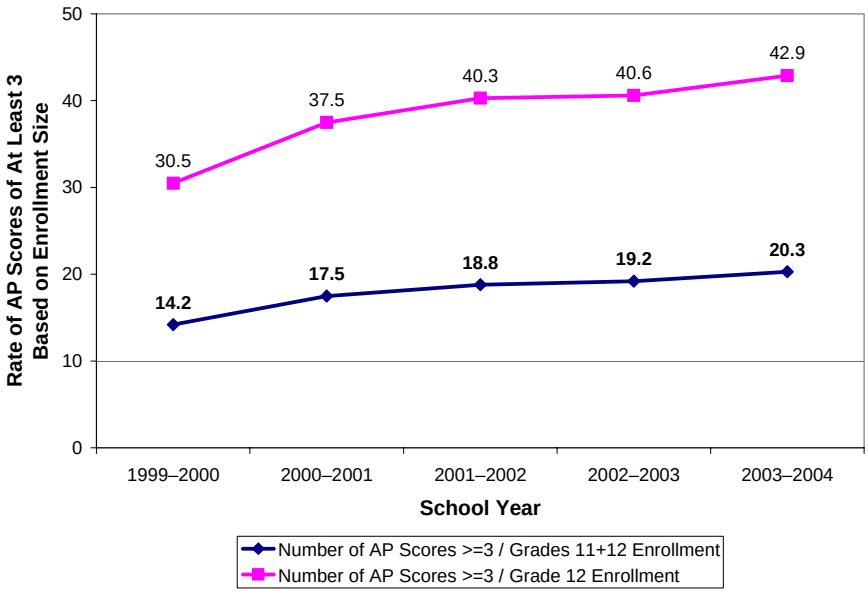


Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

Figure 6.12. AP participation rates over time.

The CDE website also reports AP pass rates over time. These data are summarized in Figure 6.13 but require some explanation. The numerator in each calculation is the number of AP tests on which a score of 3 or greater[11] was earned. The denominator for one line is grade 12 enrollment; the denominator on the other line is total grade 11 and grade 12 enrollment. Note that students who earned a score of 3 or better on multiple AP exams were counted multiple times in the numerator, but only once in the denominator. Therefore, the rate of 14.2 percent pass rate among 12th graders in 1999–2000 does not indicate that 14.2 percent of high school seniors earned AP credit; in fact, Figure 6.12 indicates that only 12.8 percent of seniors took one or more AP exams. However, these rates are useful to assess overall AP impact over time. Inspection of Figure 6.13 reveals that AP pass rates have increased over time. This is an indirect indicator of more students taking a higher number of more rigorous high school courses.

[11] AP exam scores are on a scale of 1–5. Typically postsecondary institutions grant credit or advanced placement for minimum scores of 3 or 4. A score of 3 is a commonly accepted indicator of success on an AP exam.



Source: California DataQuest System (http://data1.cde.ca.gov/dataquest)

Figure 6.13. AP pass rates over time (i.e., number of AP exam scores >=3 as a percentage of student enrollment).

College/University Enrollment

Finally, we turn toward college and university enrollment as an indicator of the extent to which high schools are preparing—and perhaps encouraging—students to continue their education beyond high school. Information presented here was gathered from the California Postsecondary Education Commission (CPEC) website. CPEC reports information about enrollments in various strata of California colleges and universities (i.e., University of California (UC), California State Universities (CSU) and California Community Colleges (CCC)) over time. Enrollment data are provided for all college-level students, as well as first time freshmen (FTF) from public and private California high schools. Data regarding California high school graduate enrollment as FTF are provided here with a caveat; these data do not indicate the number or percentage of California high school graduates who enroll in out-of-state schools. Therefore these data are not presented as a complete and direct measure of college attendance after high school, but only as a partial picture.

Table 6.5 lists counts of public and private high school graduates, public school graduates completing A–G courses, and FTF enrollments by California system and overall, for five years.

Table 6.5. California Postsecondary Education Commission (CPEC) Counts of High School Graduates and FTF Enrollments

Year	High School Graduates			First-Time Freshmen			
	All	Public	A-G Courses	UC	CSU	CCC	Total
2000	340,462	309,866	107,926	27,443	35,564	113,351	176,358
2001	344,217	316,124	112,469	28,949	38,291	118,003	185,243
2002	356,685	325,895	112,934	29,870	39,574	129,929	199,373
2003	373,162	341,078	114,194	30,133	39,728	117,833	187,694
2004	375,940	343,481	115,680	27,663	40,164	128,638	196,465

Source: California Postsecondary Education Commission website (http://www.cpec.ca.gov/)

Figure 6.14 reports the same enrollment in the three strata of California universities and colleges, as a percentage of public and private high school graduates. Inspection of the figure indicates that enrollment in University of California and California State University schools, as a percentage of public and private high school graduates, has decreased somewhat in 2003 and 2004. However, once enrollment in community colleges is included, overall enrollment increased slightly in 2004—to a total of 52.3 percent across all three systems.

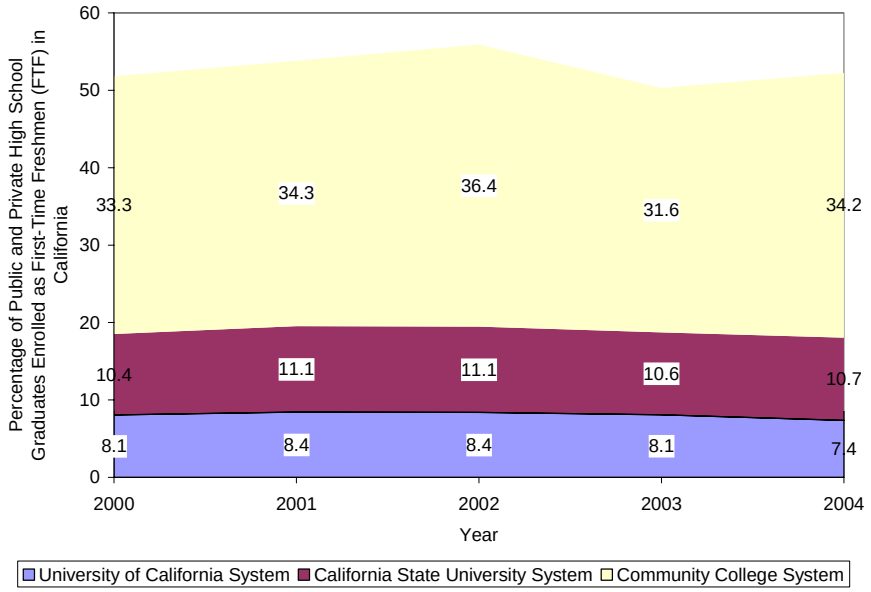


Figure 6.14. Percentage of California public and private high school graduates enrolling as first time freshmen (FTF) in California colleges and universities.

Student Questionnaire Regarding CAHSEE

A student questionnaire was developed to investigate several topics including how students prepared for the CAHSEE, how they were exposed to test related topics, how they perceived the impact of the tests on their high school graduation and their post-high-school plans. Although the questionnaire has been administered since 2001, this section will analyze and report only responses collected in 2004 and 2005. All the respondents were students in the Classes of 2006 and 2007. An overwhelming majority of the respondents were 10th grade students when they took the CAHSEE. A small percentage of the students of the Class of 2006 took the tests in 2004 and took them again in 2005 because they did not pass in 2004. Therefore, we have three major cohorts of respondents in our analysis, including the overall Class of 2006, the overall Class of 2007, and the repeat test takers who took the tests in both 2004 and 2005. Our main purposes are to:

- Compare students' responses in 2004 and 2005
- Examine differences in responses of the three cohorts
- Compare responses of students who passed the tests and those who did not pass
- Compare responses of disadvantaged students, including economically disadvantaged students, English learners, students with special education needs, and non-disadvantaged students
- Examine response differences on two major demographic variables, gender and race/ethnicity

This chapter will report overall survey findings and important group differences, but will present the student responses only of several groups of most interest in tables and figures. These groups include the overall Class of 2006 and 2007, students who did not pass the tests, disadvantaged students, and students who took the tests repeatedly in 2004 and 2005. Detailed results of all the demographic groups can be found in Appendix I. Because repeat test takers from the Class of 2006 took the tests along with students of the Class of 2007 in 2005, their responses in this year were put under the category of the Class of 2007 in tables and figures.

Number of Respondents

Table 6.6 shows the number of first time and repeat test takers in each of the demographic groups reported in the results of the Student Questionnaire.

Table 6.6. Number of First time and Repeat Test Takers in 2004 and 2005

	First Time Test Takers				Repeat test takers	
	Class of 2006		Class of 2007		Year 2005	
Group	ELA	Math	ELA	Math	ELA	Math
1) All	450,450	452,113	450,294	450,534	42,279	42,178
2) Passed	334,383	329,845	346,036	334,246	17,989	17,408
3) Didn't Pass	116,067	122,268	104,258	116,288	24,290	24,770
4) Female	220,772	221,641	220,820	221,147	17,849	21,073
5) Male	229,242	230,008	228,396	228,284	24,430	21,105
6) Asian	42,238	42,330	42,058	41,946	2,651	1,317
7) Black	36,086	36,332	36,849	37,057	3,797	4,817
8) Hispanic	183,837	184,790	184,124	184,387	27,410	26,704
9) White	163,417	163,698	159,259	159,090	6,859	7,749
10) Non-disadvantaged	228,911	229,564	223,987	224,068	6,416	8,772
11) Economically Disadvantaged	180,413	181,434	187,334	187,534	27,196	25,408
12) English Learners	81,763	82,215	80,196	79,937	20,460	16,118
13) Disabilities	41,243	41,185	39,935	39,915	12,454	12,411

Test Preparation

Question 1 of the Student Questionnaire collected data on how students prepared for the tests. Responses to this question following the ELA and math tests are shown in Table 6.7.

Question 1: How did you prepare for this test? (Mark all that apply.)

A. A teacher or counselor told me about the purpose and importance of the test.
B. I practiced on questions similar to those on the test.
C. A teacher spent time in class helping me to get ready to take the test.
D. I did not do anything in addition to regular course work to prepare for this test.

Table 6.7. Student-reported Test Preparation

		Class 2006				Class 2007			
Subject	Group	A	B	C	D	A	B	C	D
ELA	All	29.6%	31.0%	39.8%	29.5%	29.1%	30.8%	40.1%	30.0%
	Didn't Pass	30.2%	26.8%	35.0%	21.7%	29.7%	27.2%	35.9%	20.3%
	Disadvantaged	30.7%	30.1%	39.3%	22.0%	30.6%	30.2%	40.4%	21.3%
	Repeat Takers	29.9%	27.8%	38.8%	18.4%	30.5%	23.7%	25.2%	29.1%
Math	All	26.6%	30.9%	26.2%	37.7%	26.7%	31.3%	26.5%	37.7%
	Didn't Pass	28.5%	27.3%	26.6%	28.3%	28.5%	28.9%	28.3%	26.1%
	Disadvantaged	28.9%	31.3%	29.3%	27.1%	29.4%	32.1%	30.7%	25.9%
	Repeat Takers	28.6%	29.4%	30.4%	24.1%	29.0%	27.6%	22.9%	29.4%

Overall, students' responses to this question were not much different between the Class of 2006 and 2007. Practicing sample questions could be one effective way of test preparation because students who passed the tests were more likely to do so than those who did not pass. Compared to math test takers, a higher percentage of ELA test takers reported that they got teachers' help in classes and, meanwhile, a lower percentage of ELA test takers said they did not make any extra effort in addition to regular course work to prepare for the test. ELA test takers who passed the test were more likely to report having teachers' help in classes.

First time test takers and non-disadvantaged students were much more likely to indicate solely relying on regular class work to prepare for the tests than repeat test takers and disadvantaged students.

Compared to the test preparation of male students, female students were more likely to report being told the purpose and importance of the tests, practicing sample questions and getting teachers' help in classes and more likely to claim making extra preparation effort beside regular course work. Higher percentages of Asian and White students indicated they did not make any extra effort to prepare for the tests compared to Black and Hispanic students.

Importance of the Test

Question 2 of the Student Questionnaire investigated how important the tests were perceived to be by test takers. Responses to this question following the ELA and math tests are shown in Table 6.8

Question 2: How important is this test to you?

A. Very important
B. Somewhat important
C. Not important

Table 6.8. Importance of the Tests as Perceived by Test Takers

		Class 2006			Class 2007		
Subject	Group	A	B	C	A	B	C
ELA	All	73.9%	21.2%	4.9%	75.5%	20.2%	4.4%
	Didn't Pass	79.2%	16.4%	4.4%	80.3%	15.5%	4.2%
	Disadvantaged	81.0%	15.3%	3.7%	82.3%	14.3%	3.5%
	Repeat Takers	83.1%	13.7%	3.2%	87.6%	9.5%	2.9%
Math	All	73.0%	21.9%	5.1%	74.8%	20.6%	4.6%
	Didn't Pass	78.9%	17.2%	3.9%	81.4%	15.1%	3.5%
	Disadvantaged	80.6%	16.0%	3.5%	82.2%	14.5%	3.2%
	Repeat Takers	83.2%	14.2%	2.7%	87.0%	10.3%	2.6%

Overall, more than 90 percent of test takers perceived the tests as “very important” or “important” to them, regardless of class or content area. The percentage of students who indicated the tests “very important” increased by about 2 percent from the Class of 2006 to the Class of 2007 (see Figure 6.15). Repeat test takers were about 10 percent more likely to report the tests as “very important” than first time test takers. Students who did not pass the tests or were categorized as “disadvantaged” (except students with special education needs) were more likely to report “very important” or ”somewhat important” than those who passed or were categorized as “non-disadvantaged”.

Higher percentages of Asian, Black, and Hispanic students reported the tests as “very important” or “important” than did White students. Female students were more likely to report “very important” than male students.

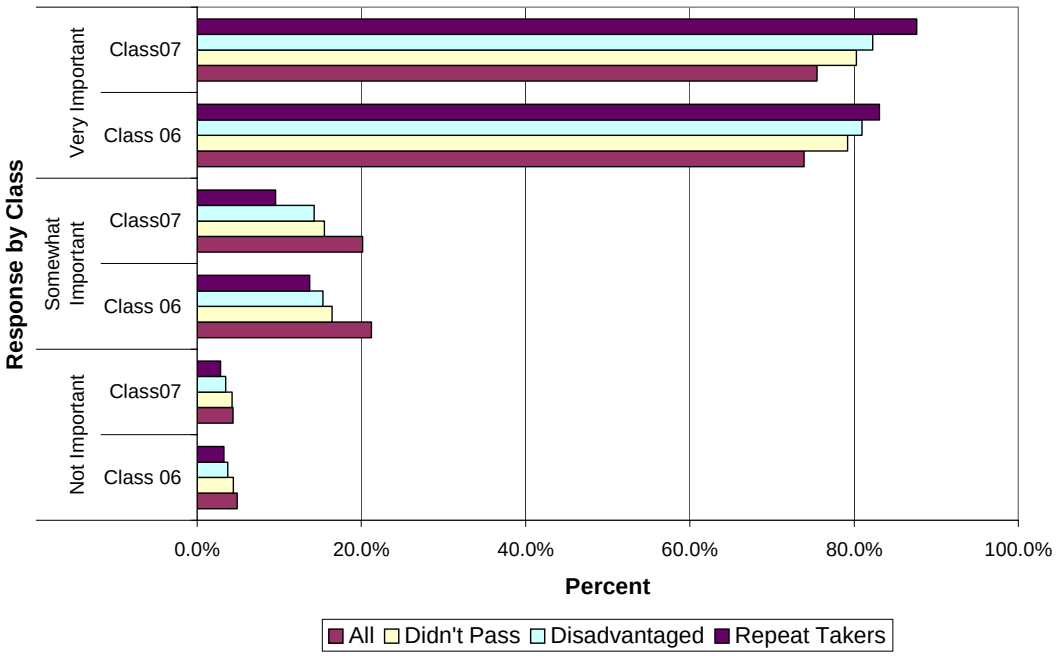


Figure 6.15. Importance of the ELA test perceived by test takers.

Plans for High School and Beyond

Question 3 of the Student Questionnaire asked students if they thought they would graduate from high school. Responses to this question following the ELA and math tests are shown in Table 6.9.

Question 3: Do you think you will graduate from high school?

A. Yes
B. No
C. Not sure

Table 6.9. Self-reported Certainty About High School Graduation

		Class 2006			Class 2007		
Subject	Group	A	B	C	A	B	C
ELA	All	87.8%	1.4%	10.7%	88.7%	1.4%	9.9%
	Didn't Pass	70.2%	3.9%	25.9%	71.3%	3.9%	24.8%
	Disadvantaged	76.8%	2.8%	20.4%	78.0%	2.8%	19.3%
	Repeat Takers	73.4%	2.9%	23.6%	76.1%	3.1%	20.8%
Math	All	86.9%	1.9%	11.3%	87.9%	1.8%	10.2%
	Didn't Pass	71.2%	3.9%	24.9%	72.8%	3.8%	23.4%
	Disadvantaged	76.4%	3.0%	20.6%	77.9%	3.1%	19.0%
	Repeat Takers	74.9%	2.9%	22.2%	75.7%	3.4%	20.9%

For both first-time and repeat test takers, the percentages of students who reported they were confident (i.e. responded “yes”) of high school graduation increased slightly from 2004 to 2005.

A significantly higher percentage of students who passed the tests (93%) indicated that they would graduate from high school than those who didn’t pass (71%). Nearly 90 percent of first-time test takers believed that they would graduate from high school, about 15 percent higher than repeat test takers. Non-disadvantaged students were much more likely to respond “yes” to this question than disadvantaged students.

Response patterns of the four racial/ethnic groups examined were different for first time test takers and repeat test takers. Among the first time test takers, White and Asian students were more likely to report that they would graduate from high school compared to Black and Hispanic students. However, among the repeat test takers, Black students were more confident about high school graduation than the other three racial/ethnic groups.

Gender differences were also observed. A higher percentage of female students than male students reported that they would graduate from high school.

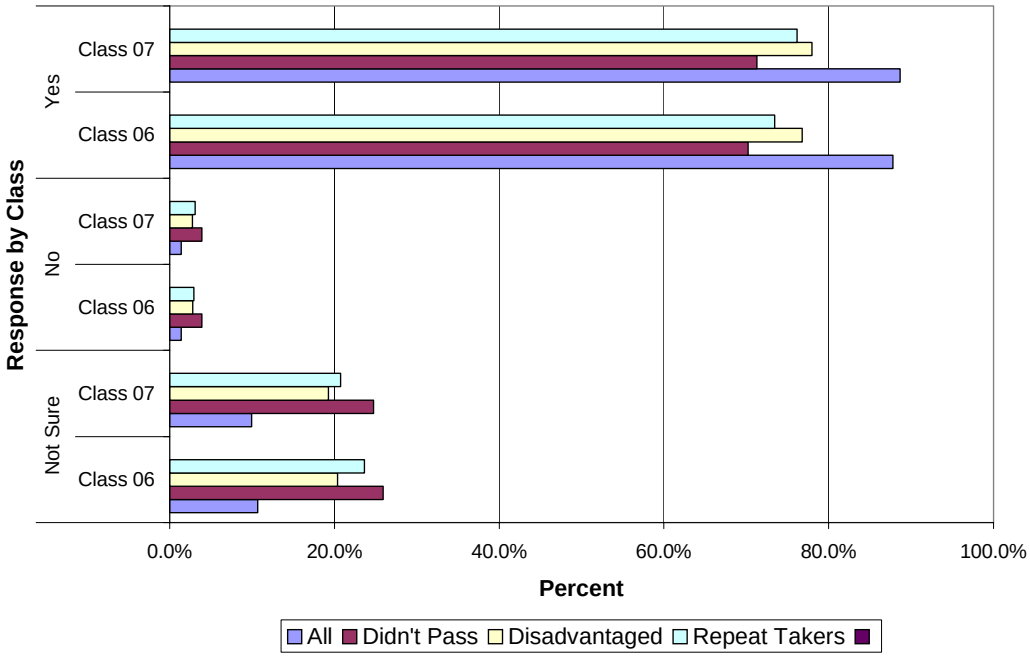


Figure 6.16. Certainty about high school graduation reported by ELA test takers.

Question 4 of the Student Questionnaire asked the test takers if they believed the requirement to pass a test such as the CAHSEE would make it harder for them to graduate from high school. Responses to this question following the ELA and math tests are shown in Table 6.10.

Overall, about one-third of students reported that the test requirement would not make it much harder for them to graduate from high school and approximately 50 percent or more of students responded “a lot harder” or “somewhat harder.” Approximately 10 percent of students indicated that they “really didn’t know” the impact of tests on their high school graduation.

Question 4: Will it be harder to graduate because you have to pass a test like this?

A. Yes, a lot harder
B. Somewhat harder
C. Not much harder at all
D. I really don’t know

Table 6.10. Perceived Impact of the Tests on High School Graduation

		Class 2006				Class 2007			
Subject	Group	A	B	C	D	A	B	C	D
ELA	All	20.8%	34.1%	34.1%	11.1%	17.3%	33.4%	37.7%	11.7%
	Didn't Pass	44.4%	31.3%	10.4%	13.8%	40.5%	32.8%	12.1%	14.6%
	Disadvantaged	37.6%	34.2%	15.3%	12.9%	33.0%	35.4%	17.9%	13.7%
	Repeat Takers	46.7%	31.5%	9.6%	12.3%	48.7%	34.0%	10.1%	7.2%
Math	All	24.4%	36.9%	31.2%	7.4%	20.8%	36.6%	34.8%	7.9%
	Didn't Pass	47.5%	34.8%	8.5%	9.2%	43.7%	37.1%	10.0%	9.2%
	Disadvantaged	40.6%	36.3%	14.0%	9.1%	36.5%	37.6%	16.4%	9.5%
	Repeat Takers	49.9%	35.0%	7.5%	7.7%	53.5%	33.9%	7.3%	5.2%

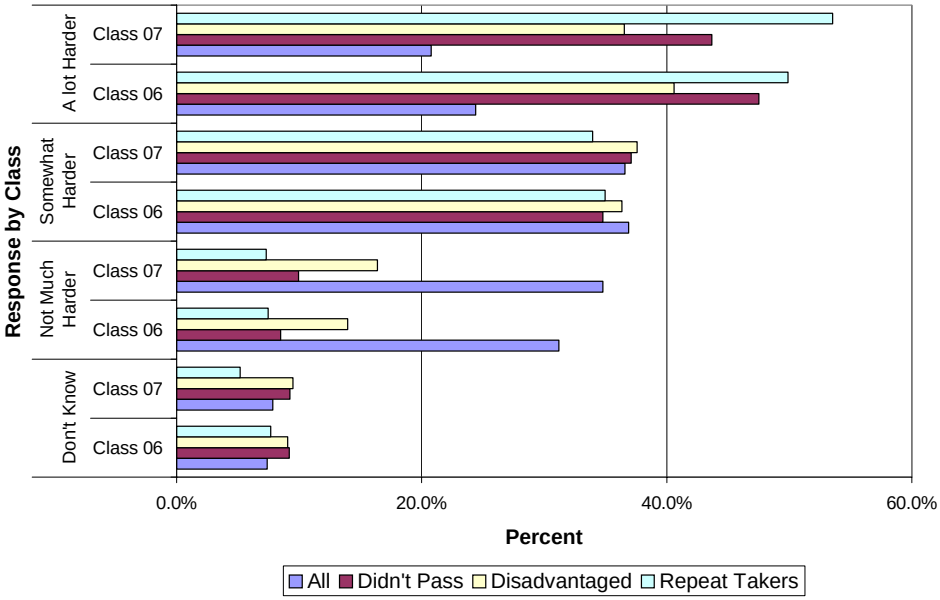


Figure 6.17. Perceived impact of the test requirement on high school graduation after the math test.

Three percent more members of the Class of 2007 responded that graduation would be “not much harder at all” than did members of the class of 2006; paralleling this response, 3 percent fewer members of the class of 2007 responded that it would be “a lot harder.” A higher percentage of math test takers than ELA test takers responded “a lot harder” or “somewhat harder.”

A greater percentage of students who did not pass the tests or took the tests repeatedly reacted with “a lot harder” compared to those who passed or were first time test takers. Similarly, a higher percentage of disadvantaged students rated high school graduation “a lot harder” with the test requirement than non-disadvantaged students.

Compared to White and Asian students, Black and Hispanic students reported the test would make their high school graduation "a lot harder." Question 5 of the Student Questionnaire surveyed students' future plans after graduating from high school. Responses to this question following the ELA and math tests are shown in Table 6.11.

Question 5: What do you think you will do after high school?

A. I will join the military.
B. I will go to community college.
C. I will go to a 4-year college or university.
D. I will go to vocational, technical, or trade school.
E. I will work full-time.
F. I really don't know what I will do after high school

Table 6.11. Self-reported Plans After Graduating From High School

		Class 2006						Class 2007					
Subject	Group	A	B	C	D	E	F	A	B	C	D	E	F
ELA	All	5.0%	18.4%	55.9%	4.0%	3.5%	13.1%	5.0%	18.4%	55.9%	4.0%	3.5%	13.1%
	Didn't Pass	8.7%	22.3%	35.5%	5.1%	9.5%	18.9%	8.7%	22.3%	35.5%	5.1%	9.5%	18.9%
	Disadvantaged	7.1%	21.3%	43.0%	4.7%	6.8%	17.0%	7.1%	21.3%	43.0%	4.7%	6.8%	17.0%
	Repeat Takers	9.0%	23.9%	37.7%	4.6%	7.2%	17.6%	7.8%	29.9%	33.4%	5.5%	7.9%	15.4%
Math	All	6.3%	18.1%	53.7%	3.9%	3.7%	14.2%	5.4%	18.3%	55.0%	4.0%	3.7%	13.6%
	Didn't Pass	9.9%	25.5%	34.0%	4.9%	8.7%	19.6%	8.4%	23.6%	35.7%	4.9%	8.7%	18.8%
	Disadvantaged	8.7%	20.7%	41.4%	4.5%	6.9%	17.9%	7.4%	21.4%	42.4%	4.5%	6.9%	17.5%
	Repeat Takers	9.0%	24.8%	37.0%	4.5%	7.0%	17.8%	8.0%	32.1%	31.5%	5.8%	7.4%	15.2%

Overall, around 55 percent of students reported plans to attend "a 4-year college or university" and nearly 20 percent planned to attend "community college." About 10 percent or less of students reported each of the following plans: joining the military, going to vocational, technical, or trade school, or working full time. From the Class of 2006 to the Class of 2007, the percentage of students who reported planning to go to colleges (including community college and 4-year college/university) rose slightly and the percentages of students planning to "join the military" or without a specific post high school plan decreased a little. Compared to first-time test takers, repeat test takers were about 20 percent less likely to set a 4-year college or university plan and somewhat more likely to have other plans or have no plan at all.

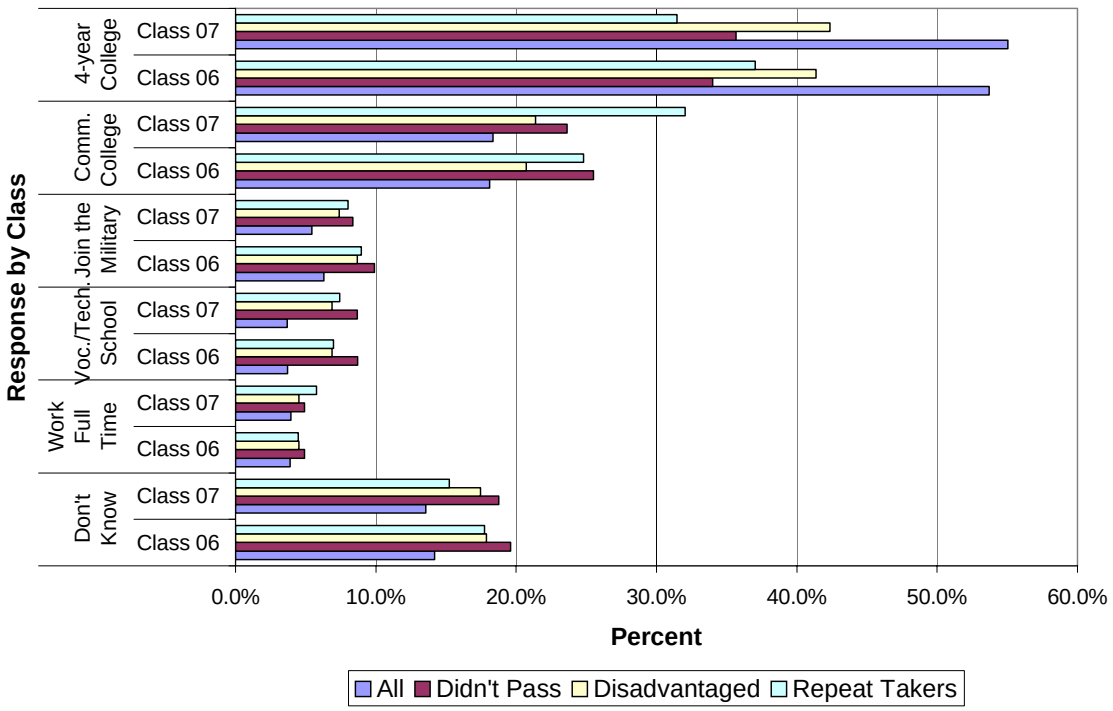


Figure 6.18. Self-reported post high school plans after the math test.

Perceived test difficulty apparently showed impact on high school plans. Compared to students who passed the tests or were categorized as "non-disadvantaged," students who did not pass or were categorized as "disadvantaged" were far less likely to indicate a 4-year college/university plan, and were more likely to set plans for community college, military service, or to have no plan.

A higher percentage of female students indicated that they planned to go to colleges than male students. Based on the percentages planning to attend college (including both 4-year college/university and community college), the four racial/ethnic groups, ranked from high to low, were, in order, Asian, Black, White and Hispanic.

Question 6 of the Student Questionnaire asked test takers how certain they were about their after-high-school plans. Responses to this question following the ELA and math tests are shown in Table 6.12.

Question 6: How sure are you about what you will do after high school?

A. Very sure
B. Somewhat sure
C. Not sure at all

Table 6.12. Self-reported Certainty about Post High School Plans

		Class 2006			Class 2007		
Subject	Group	A	B	C	A	B	C
ELA	All	42.1%	45.0%	13.0%	43.4%	44.2%	12.4%
	Didn't Pass	41.2%	41.9%	16.9%	42.3%	41.3%	16.4%
	Disadvantaged	40.9%	43.8%	15.4%	42.4%	42.9%	14.7%
	Repeat Takers	42.3%	42.4%	15.3%	45.1%	41.6%	13.3%
Math	All	43.0%	43.7%	13.2%	44.4%	42.9%	12.7%
	Didn't Pass	42.4%	41.4%	16.3%	43.8%	40.6%	15.6%
	Disadvantaged	42.3%	41.9%	15.8%	43.6%	41.2%	15.2%
	Repeat Takers	43.4%	42.4%	14.2%	46.3%	41.2%	12.6%

Overall, about 45 percent of students indicated that they were “very sure” about their post high school plans. A little over 40 percent of students reported “somewhat sure” and more than 10 percent “not sure.” The percentage of students who were “very sure” about their post-high school plans increased slightly from the Class of 2006 to the Class of 2007.

Compared to students who passed the tests or were categorized as “non-disadvantaged,” a higher percentage of students who did not pass or were categorized as “disadvantaged” reported “not sure” about their post high school plans. Female students were slightly more likely to indicate “very sure” about their post-high-school plans compared to male students. Of the four racial/ethnic groups examined, a higher percentage of Black students claimed “very sure” about their post-high-school plans than did students from the other three groups.

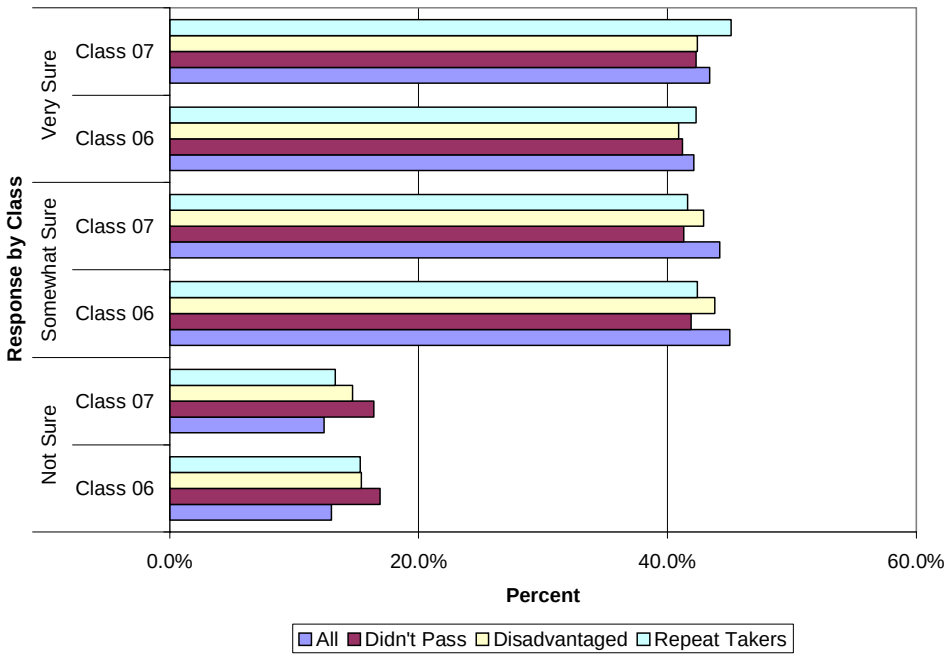


Figure 6.19. Certainty about post high school plans after the ELA test.

Perceived Test Performance and Influencing Factors

Question 7 of the Student Questionnaire asked the test takers whether they did as well as they could on the tests. Responses to this question following the ELA and math tests are shown in Table 6.13.

Question 7: How well did you do on this test?

A. I did as well as I could
B. I did not do as well as I could have

Table 6.13. Self-reported Test Performance

		Class 2006		Class 2007	
Subject	Group	A	B	A	B
ELA	All	85.2%	14.8%	86.9%	13.1%
	Didn't Pass	74.0%	26.0%	76.0%	24.0%
	Disadvantaged	80.1%	19.9%	82.2%	17.8%
	Repeat Takers	75.5%	24.5%	84.6%	15.4%
Math	All	78.8%	21.2%	81.0%	19.0%
	Didn't Pass	70.6%	29.4%	72.6%	27.4%
	Disadvantaged	76.7%	23.3%	78.7%	21.3%
	Repeat Takers	73.7%	26.3%	81.8%	18.2%

Overall, a higher percentage of test takers indicated they did as well as they could on the tests in the Class of 2007 than in the Class of 2006. In both the Classes of 2006 and 2007, those who passed the tests or were categorized as “non-disadvantaged” were much more likely to indicate that they did as well as they could than those who did not pass or were categorized as “disadvantaged.”

Racial/ethnic and gender differences were observed. In the Classes of 2006 and 2007, White students were most likely to report they had performed as well as they could on the ELA test, while Asian students were most likely to report so on the math test. Generally speaking, the racial/ethnic groups reported far more similarly in the repeat test takers cohort. Consistently, a higher percentage of female students than male students indicated they had done as well they could on the ELA test.

Question 8 of the Student Questionnaire investigated the main reasons that students did not do as well as they could have on the test. Only students who answered “I did not do as well as I could have” on Question 7 were supposed to answer Question 8. Responses to this question following the ELA and math tests are shown in Table 6.14.

Question 8: The main reasons I did not do as well on this test as I could have are (mark all that apply):

A. I was too nervous to do as well as I could.
B. I was not motivated to do well.
C. I did not have time to do as well as I could.
D. Conditions in the testing room made it difficult to concentrate
E. There are questions on this test that cover topics I was taught, but I did not remember how to answer them.
F. There were other reasons why I did not do as well as I could.

Table 6.14. Percentage of Students Reporting Reasons For Not Doing as Well as They Could

		Class 2006						Class 2007					
Subject	Group	A	B	C	D	E	F	A	B	C	D	E	F
ELA	All	28.7%	21.2%	8.6%	18.6%	19.1%	41.7%	28.1%	21.9%	8.2%	18.5%	19.0%	41.0%
	Didn't Pass	31.3%	18.7%	9.8%	15.0%	19.9%	33.3%	30.8%	19.4%	9.2%	14.9%	20.2%	32.0%
	Disadvantaged	32.2%	16.8%	9.8%	16.2%	20.9%	34.9%	31.1%	17.3%	9.4%	15.9%	21.0%	34.4%
	Repeat Takers	35.0%	16.5%	9.5%	14.8%	21.1%	31.4%	28.8%	18.6%	10.2%	14.6%	19.4%	31.9%
Math	All	21.7%	16.9%	5.0%	13.2%	51.6%	32.9%	21.6%	16.8%	5.1%	13.1%	51.0%	31.6%
	Didn't Pass	24.9%	16.7%	6.1%	11.6%	42.5%	32.3%	25.5%	16.6%	6.2%	11.2%	42.3%	31.0%
	Disadvantaged	25.4%	14.9%	6.4%	12.2%	43.0%	31.2%	25.6%	15.1%	6.4%	11.8%	42.4%	30.1%
	Repeat Takers	27.3%	14.1%	5.6%	11.1%	45.8%	29.5%	26.6%	15.3%	7.2%	11.8%	41.9%	26.1%

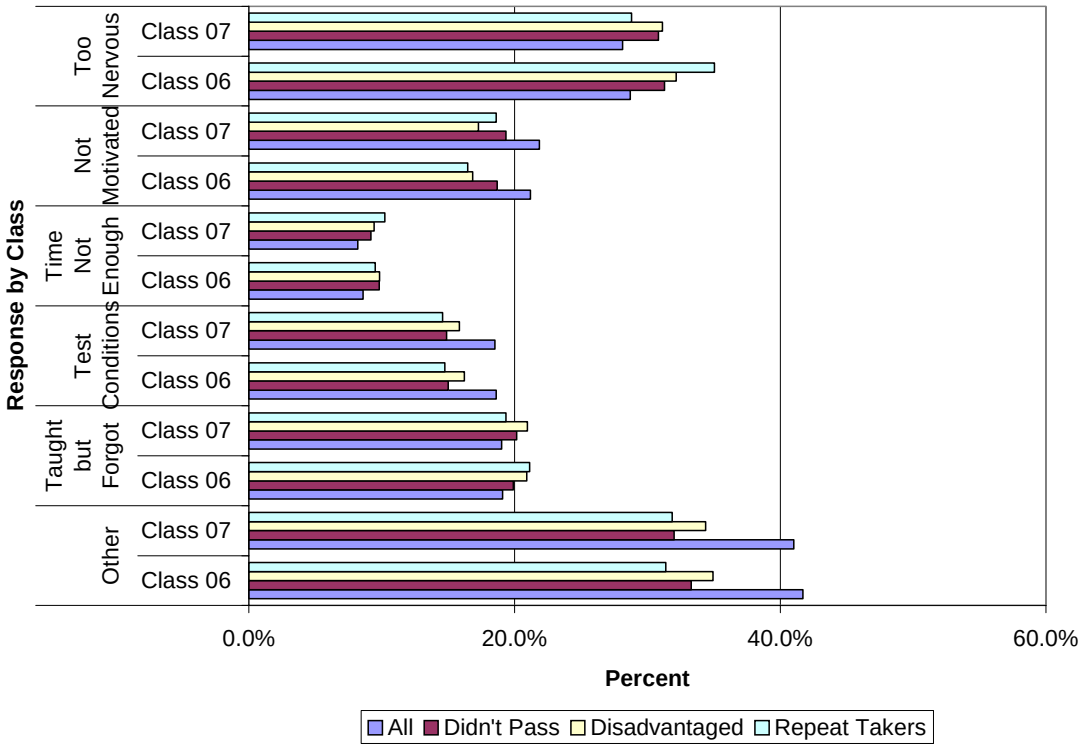


Figure 6.20. Reasons students did not do as well as they could on the ELA test.

Overall, students' responses were consistent across the two years. For both the Class of 2006 and the Class of 2007, about half of math test takers but only about one fifth of ELA test takers indicated that they had not performed as well as they could because they could not remember how to answer the questions, even though they had been taught on related topics. Students who passed the math test were about 10 percent more likely to report not remembering compared to students who did not pass.

Thirty to forty percent of respondents reported there were "other" reasons they did not do as well as they could. His was typically the most frequently chosen response. This category may warrant further investigation in future assessments.

About one third of the ELA test takers and one fifth of the math test takers reported they were "too nervous" to do as well as they could on the test. Disadvantaged students or those who did not pass the tests were more likely to be nervous compared to non-disadvantaged students or those who passed the tests. Black and Hispanic students reported being nervous more often than White and Asian students; and female students were more nervous than male students.

About 20 percent of the ELA test takers and 15 percent of the math test takers in the Class 2006 and 2007 indicated that they were "not motivated to do well." Repeat test takers reported less motivation than first test takers. Lower percentages of female, Black, Hispanic, and disadvantaged students reported "not motivated to do well" compared to male, White, Asian, and non-disadvantaged students.

Approximately 20 percent of the ELA test takers and 15 percent of the math test takers in the Classes of 2006 and 2007 mentioned that "conditions in the testing room made it difficult to concentrate." Only about 10 percent of the ELA test takers and around 5 percent of the math test takers reported that they "did not have time to do as well as I could." Approximately 40 percent of the ELA test takers and 30 percent of the math test takers indicated that they did not do as well as they could on the tests because of other reasons.

Question 9 of the Student Questionnaire investigated whether all of the tested topics were covered in the courses that students had taken. Responses to this question following the ELA and math tests are shown in Table 6.15.

Question 9: Were the topics on the test covered in courses you have taken?

A. Yes, all of them.
B. Most, but not all of them (two thirds or more were covered).
C. Many topics on the test were not covered in my courses (less than two thirds were covered).

Table 6.15. Self-reported Exposure to Topics on the Tests

		Class 2006		Class 2007	
Subject	Group	A or B	C	A or B	C
ELA	All	91.5%	8.5%	92.2%	7.7%
	Didn't Pass	83.0%	17.0%	83.9%	16.1%
	Disadvantaged	86.2%	13.8%	87.4%	12.7%
	Repeat Takers	82.8%	17.2%	82.3%	17.7%
Math	All	88.5%	11.4%	88.9%	11.1%
	Didn't Pass	78.3%	21.7%	79.9%	20.1%
	Disadvantaged	83.1%	16.9%	84.3%	15.7%
	Repeat Takers	80.8%	19.2%	82.1%	17.8%

In the Class of 2006, more than 91 percent of the ELA test takers and a little below 90 percent of the math test takers reported that all or most of the topics covered by the test questions were covered in the courses. In the Class of 2007, the percentages increased slightly after both the ELA and math tests. Meanwhile, the percentage of either ELA or math test takers reporting “not covered” slightly decreased from the Class of 2006 to the Class of 2007. Overall, first time test takers were more likely to indicate that the topics were “all covered” and less likely to respond “not covered” compared to repeat test takers.

Of all the various groups examined, students who did not pass the tests and students with special education needs tended to be more likely to report “not covered” topics than students in other groups. In both classes (2006 and 2007), non-disadvantaged students were much more likely to report that the topics were “all covered” and somewhat less likely to report “not covered” compared to disadvantaged students.

Consistently, a higher percentage of female students reported topics “all covered” in courses and a lower percentage reported “not covered” compared with male students. In both classes, higher percentages of White and Asian students reported “all covered” and lower percentages responded “not covered” than did Hispanic and Black students.

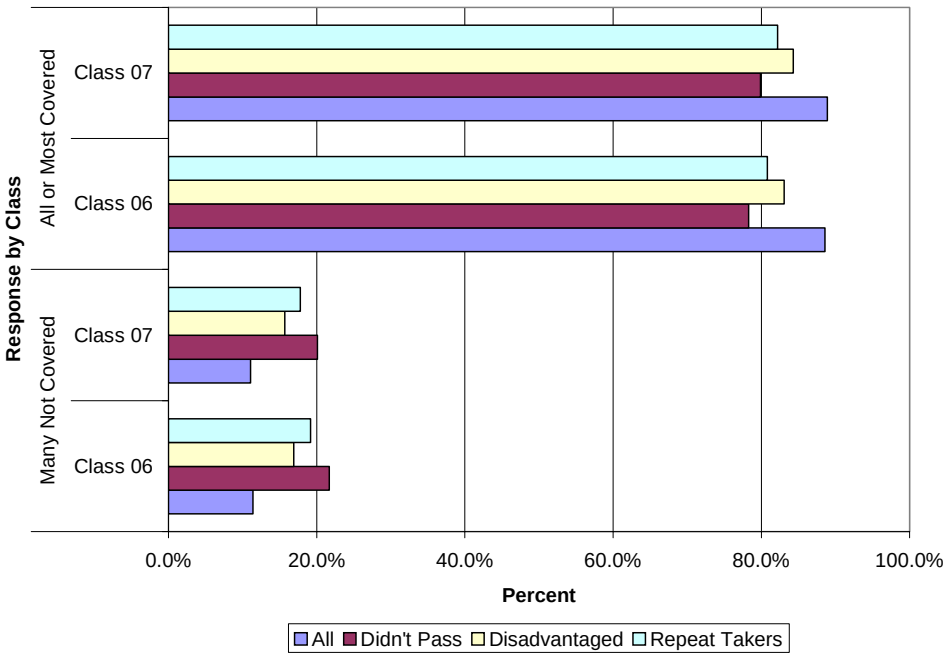


Figure 6.21. Self-reported exposure to topics on the math test.

Question 10 of the Student Questionnaire surveyed how familiar the students were with the types of questions covered on the tests. Responses to this question following the ELA and math tests are shown in Table 6.16.

Question 10: Were any of the questions on the test different from the types of questions or answer options you have encountered in your homework assignments or classroom tests?

A. Yes, many were different from anything I had seen before.
B. Yes, a few were different from anything I had seen before.
C. No, all were similar to ones used in my classes.

Table 6.16. Students' Familiarity with the Types of Questions on the Tests

		Class 2006			Class 2007		
Subject	Group	A	B	C	A	B	C
ELA	All	13.4%	52.0%	34.5%	9.3%	49.5%	41.2%
	Didn't Pass	25.9%	55.8%	18.3%	25.9%	55.7%	18.5%
	Disadvantaged	21.4%	55.7%	22.9%	20.5%	55.5%	24.0%
	Repeat Takers	25.7%	57.2%	17.0%	23.5%	58.9%	17.6%
Math	All	14.6%	51.3%	34.0%	14.4%	51.0%	34.7%
	Didn't Pass	27.0%	57.2%	15.9%	26.7%	57.3%	16.0%
	Disadvantaged	23.2%	55.8%	20.9%	22.7%	56.1%	21.2%
	Repeat Takers	26.0%	58.8%	15.2%	25.8%	59.9%	14.2%

Overall, about 10 percent of first time test takers and 25 percent repeat test takers reported that many questions were different from their course work. Compared to ELA test takers in the Class of 2006, a higher percentage of ELA test takers in the Class of 2007 indicated the test questions were "all similar" to their homework assignments or classroom tests and a lower percentage reported "different from anything I had seen before."

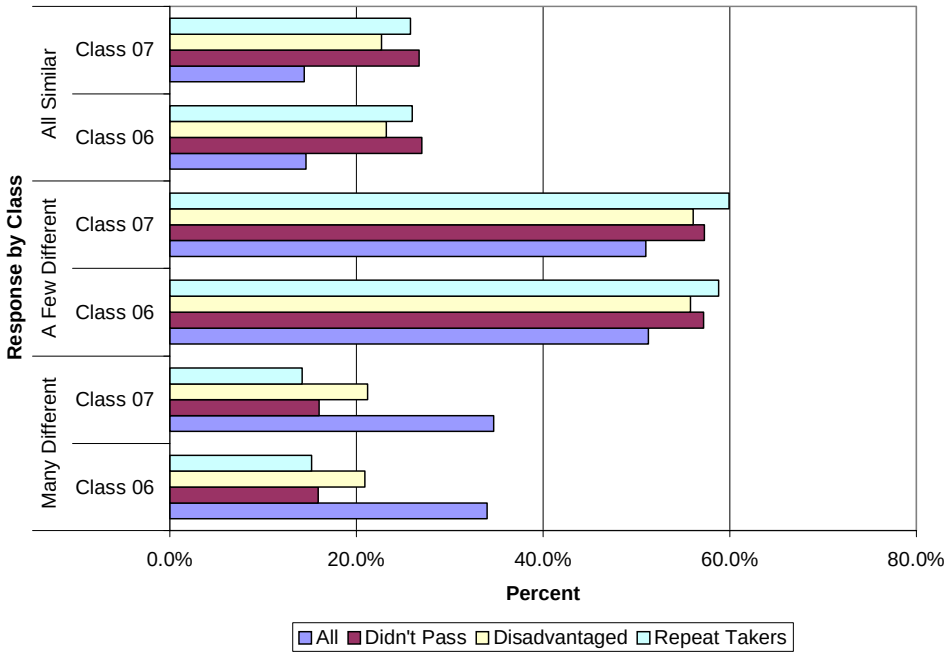


Figure 6.22. Students' familiarity with the types of questions on the math test.

Compared to students who did not pass the tests or were categorized as disadvantaged, much higher percentages of students who passed or were categorized as non-disadvantaged reported that test questions were "all similar" to their homework or classroom tests but significantly lower percentages of them reported "many were different from anything I had seen before."

A higher percentage of male students than female students reported that many test questions were unfamiliar to them. Black and Hispanic students were somewhat more likely to report so compared to White and Asian students.

Question 11 of the Student Questionnaire surveyed students' familiarity with the questions on the tests from another perspective. It asked test takers if the questions on the tests were more difficult than their course work. Responses to this question following the ELA and math tests are shown in Table 6.17.

Question 11: Were the questions on this test more difficult than questions you were given in classroom tests or homework assignment?

A. Yes, the test questions were generally more difficult than the questions I encountered in my course work.
B. The test questions were generally about as difficult as the questions I encountered in my course work.
C. No, the questions were not more difficult than questions I encountered in my course work.

Table 6.17. Students' Perceived Difficulty of the Test Questions

		Class 2006		Class 2007	
Subject	Group	A	B or C	A	B or C
ELA	All	18.8%	81.2%	17.5%	82.5%
	Didn't Pass	36.9%	63.1%	36.4%	63.6%
	Disadvantaged	31.2%	68.8%	29.5%	70.5%
	Repeat Takers	38.1%	61.8%	34.9%	65.1%
Math	All	24.0%	76.0%	22.3%	77.7%
	Didn't Pass	42.3%	57.6%	40.9%	59.1%
	Disadvantaged	36.2%	63.8%	34.4%	65.6%
	Repeat Takers	41.6%	58.4%	41.4%	58.6%

For both the Class of 2006 and the Class of 2007, about 80 percent of test takers indicated that the tests were not more difficult than their course work. A little below 20 percent of the ELA test takers and a little over 20 percent of the math test takers reported the tests were more difficult than their course work. Overall, there was a slight decrease in the percentage of students from the Class of 2007 who reported that the tests were more difficult than their course work, as compared with the Class of 2006.

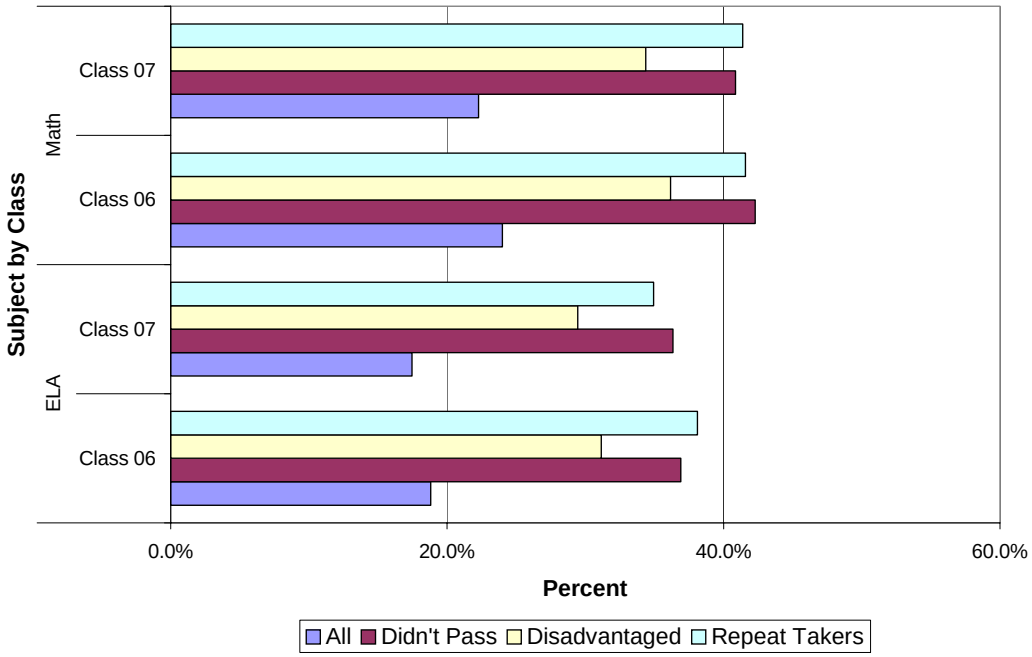


Figure 6.23. Percentage of students perceiving the test questions as more difficult than course work.

A higher percentage of students who did not pass the tests or were categorized as “disadvantaged” rated the tests as more difficult than their course work compared to students who passed or were categorized as “non-disadvantaged.” Repeat test takers were more likely to rate the tests as more difficult than their course work compared to first time test takers.

Compared to female students, a higher percentage of male students indicated that the tests were more difficult than their regular course work. A higher percentage of Black and Hispanic first time test takers tended to report the tests were more difficult than course work than did White and Asian students.

Question 12 of the Student Questionnaire investigated the reasons that students found the tests difficult. Responses to this question following the ELA and math tests are shown in Table 6.18.

Question 12: If some topics on the test were difficult for you, was it because:

A. I did not take courses that covered these topics.
B. I had trouble with these topics when they were covered in courses I took.
C. I have forgotten things I was taught about these topics.
D. None of the topics was difficult for me.

Table 6.18. Students' Reasons That Topics Were Difficult on the Tests

		Class 2006				Class 2007			
Subject	Group	A	B	C	D	A	B	C	D
ELA	All	8.3%	17.5%	38.4%	35.7%	8.2%	18.1%	37.9%	35.8%
	Didn't Pass	16.9%	29.1%	38.4%	15.6%	17.4%	30.2%	37.7%	14.7%
	Disadvantaged	14.1%	25.2%	39.8%	20.9%	13.9%	25.8%	39.3%	20.9%
	Repeat Takers	16.4%	30.3%	38.8%	14.5%	17.5%	31.4%	38.0%	13.1%
Math	All	13.5%	22.8%	44.7%	19.0%	13.5%	22.6%	44.7%	19.2%
	Didn't Pass	22.7%	33.8%	35.4%	8.0%	22.4%	34.9%	35.3%	7.4%
	Disadvantaged	17.5%	29.0%	39.6%	13.8%	17.8%	29.6%	39.4%	13.2%
	Repeat Takers	21.9%	34.9%	36.0%	7.3%	22.0%	37.8%	34.8%	5.4%

The Class of 2006 and the Class of 2007 responded similarly to this question. Generally speaking, the math test was perceived as more difficult than the ELA test. About 20 percent of the math test takers and 35 percent of the ELA test takers indicated that the tests were not difficult for them. The reason most often mentioned by students (around 38 percent of ELA test takers and 45 percent of math test takers) who perceived the tests as difficult was, "I have forgotten things I was taught about these topics." About 10 percent of examinees reported that they "did not take the courses that covered these topics" and about 20 percent of them indicated having trouble with these topics when they were taught.

A higher percentage of students who did not pass the tests or were categorized as "disadvantaged" reported either not taking relevant courses or having trouble with some tested topics when they were taught, compared to students who passed or were categorized as "non-disadvantaged." Non-disadvantaged students and those who passed the tests were more likely to indicate "none of the topics was difficult for me" than disadvantaged students and those who did not pass.

Responses to this question also showed that male and female students rated the ELA test and the math test differently. After the ELA test, more female students (37%) than male students (35%) reported "none of the topics was difficult for me." After the math test, more male students (22%) indicated "none of the topics was difficult for me" than did female students (15%).

Differences were also found between the four racial/ethnic groups in the Class of 2006 and the Class of 2007. After the ELA test, about 47 percent of White students, 39 percent of Asian students, and 35 percent of Black students reported "none of the topics was difficult for me." About 25 percent of Hispanic students reported so. After the math test, approximately 33 percent of Asian students and 26 percent of White students indicated that the test was not difficult for them; by contrast, the percentages of Black and Hispanic students reporting no difficulty were far lower, 14 percent and 11 percent, respectively.

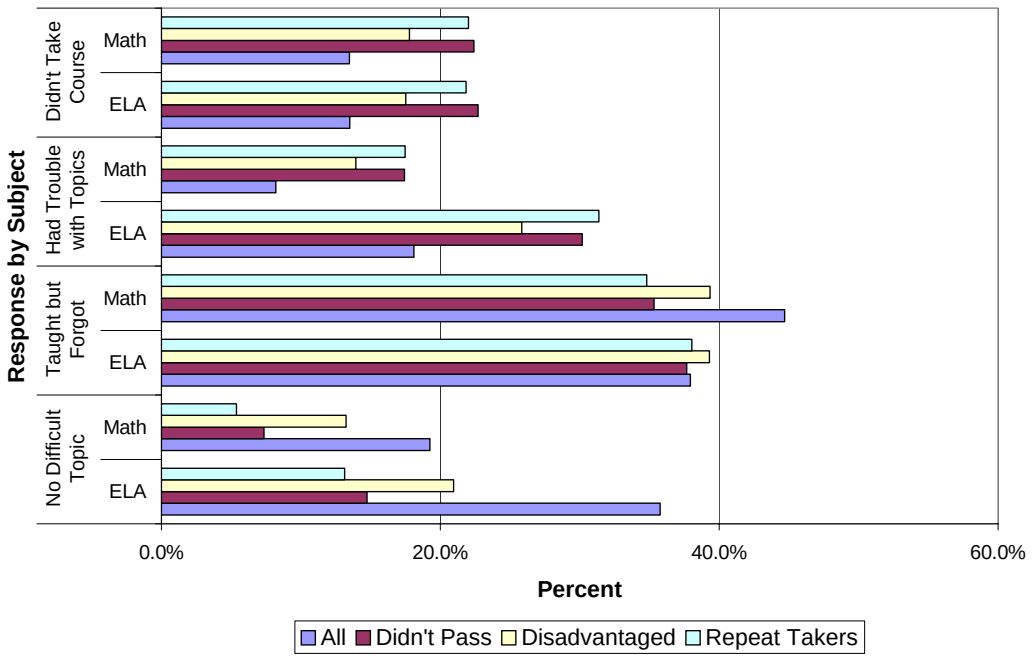


Figure 6.24. Percentage of test takers citing various reasons that test topics were difficult

Summary Findings

Data sources outside the CAHSEE program provide indications of the state of education in California, and can be used to draw out possible effects of the CAHSEE program on education as a whole. Since no students have yet been held to the CAHSEE requirement as a condition of obtaining a high school diploma, direct effects cannot be assessed at this point. Arguably, these effects—if any—may not be seen until after the Class of 2006 graduates. However, we begin analyzing trends in this report, and will continue to follow these trends in subsequent CAHSEE evaluation reports. Our 2005 Biennial Report will investigate these same trends separately by various student demographics, as data permit.

Inspection of enrollment levels, by grade and over time, was used as a proxy for existing calculations of dropout rates. Enrollment patterns indicate that the drop-off rate from 9th to 10th grade has risen above historical levels for the Classes of 2006 and 2007; however, the rates have been declining in the 11th and 12th grades. This may be an artifact of changes in retention rates that are not directly measurable.

Official dropout rate calculations indicate that both single-year and four-year dropout rates have increased slightly as of 2004. These results should be interpreted with caution because CDE amended its definition of dropouts in 2003; it now aligns with federal NCES guidelines. High school graduation rates declined slightly in 2003 and again in 2004.

Participation in, and performance on, college entrance examinations paint a mixed picture. The percentage of students taking the SAT exam declined in 2003 and 2004, as did the percentage of students earning a combined score of 1000 or greater. However, the mean SAT score increased slightly over that same time period. The percentage of students taking the ACT exam increased over that same time frame, as did the percentage of students earning a composite score of 21 or better. Mean ACT scores have also risen.

Rates of completion of A–G courses dropped in 2003 but recovered somewhat in 2004. Meanwhile, participation in AP exams, and scores of 3 or greater on those exams, have steadily increased since 2000.

Percentages of enrollment of California high school graduates as first time freshmen have decreased in both University of California and California State University institutions in 2003 and 2004, while enrollment rates in California community colleges dropped in 2003 then increased in 2004.

Summary of Student Survey Responses

Student responses to survey items administered with the CAHSEE were inspected for indications of trends in preparation for the exam and subsequent plans. Compared to the Class of 2006, students' responses showed some progress in the Class of 2007. Comparing the responses of repeat test takers in 2004 and 2005 also showed some positive changes. Detailed comparisons are presented in Table 6.19.

Table 6.19. Changes in Student Responses From 2004 to 2005: Sophomores Each Year and Changes Over Time by Repeat Test Takers

		First Time Test Takers		Repeat Test Takers	
Response	Subject	Class of 2006	Class of 2007	Responses in 2004	Responses in 2005
Perceived the tests "very important"	ELA	73.9%	75.5%	83.1%	87.6%
	Math	73.0%	74.8%	83.2%	87.0%
Would graduate from high school	ELA	87.8%	88.7%	73.4%	76.1%
	Math	86.9%	87.9%	74.9%	75.7%
Perceived "not much harder" to graduate	ELA	34.1%	37.7%	15.3%	17.9%
	Math	31.2%	34.8%	7.5%	7.3%
Would plan to go to a 4-year college	ELA	55.0%	55.9%	37.7%	33.4%
	Math	53.7%	55.0%	37.0%	31.5%
Had a plan to go to either a community college or a 4-year college	ELA	73.2%	74.3%	61.6%	63.3%
	Math	71.8%	73.3%	61.8%	63.6%
Did as well as could	ELA	85.2%	86.9%	75.5%	84.6%
	Math	78.8%	81.0%	73.7%	81.8%
All topics were covered	ELA	46.1%	48.0%	28.4%	25.7%
	Math	39.9%	48.0%	20.7%	19.6%
All the test questions were familiar	ELA	34.5%	41.2%	25.7%	23.5%
	Math	34.0%	34.7%	26.0%	25.8%
Not more difficult than course work	ELA	81.3%	82.5%	61.9%	65.1%
	Math	86.0%	87.7%	58.4%	58.6%
None of the topics was difficult for me	ELA	35.7%	35.8%	14.5%	13.1%
	Math	19.0%	19.2%	7.3%	5.7%

Note. Underlined numbers indicate negative change patterns

Compared to non-disadvantaged students and those who passed the tests, disadvantaged students or those who did not pass the tests were more likely to

- perceive the tests as more important to them,
- make extra effort besides regular course work to prepare for the tests,
- indicate that the tests would make their high school graduation harder,
- be uncertain about their high school graduation,
- be nervous when taking the tests,
- be unfamiliar with the test questions,
- report that the test questions were more difficult than regular course work.

The following are other important findings of the student questionnaire survey:

- A large majority of test takers perceived the tests as “very important” or “important” to them, regardless of class or content area.

- Practicing sample questions could be one effective way of test preparation because students who passed the tests were more likely to do so than those who did not pass.
- A large majority of the ELA and math test takers reported that all or most of the topics covered by the test questions were covered in the courses.
- Most test takers indicated that the tests were not more difficult than their course work.
- About 80 percent of the math test takers and 65 percent of the ELA test takers indicated that the tests were difficult for them.
  - The most often mentioned reason by students who perceived the tests were difficult was “I have forgotten things I was taught about these topics.”
  - About 10 percent of examinees reported that they “did not take the courses that covered these topics” and about 20 percent of them indicated having trouble with these topics when they were taught.
- Most ELA and math test takers indicated that they did as well as they could on the tests. Among those who indicated that they did not perform as well as they could, reasons were endorsed in the following order of frequency:
  - About half of math test takers but only about one fifth of ELA test takers indicated that they could not remember how to answer the questions, even though they had been taught on related topics.
  - A minority of test takers reported they were “too nervous.”
  - Fifteen–20 percent of the test takers indicated that they were “not motivated to do well.”
  - A small percentage of test takers noted that “conditions in the testing room made it difficult to concentrate.”
  - A small percentage of both ELA and math test takers reported that they “did not have time to do as well as I could.”
- A significantly higher percentage of students who passed the tests (93%) indicated that they would graduate from high school than those who didn’t pass (71%).
- More than half the test takers indicated that the tests would make it harder for them to graduate from high school.
- Overall, over half the students reported plans to attend a 4-year college or university and nearly one-fifth planned to attend community college. A small percentage of students reported each of the following plans: joining the military, going to vocational, technical, or trade school, or working full time.

Chapter 7: Options for Students Receiving Special Education Services

Introduction

Current state law requires all students to pass the California High School Exit Examination (CAHSEE) to receive a high school diploma, beginning with the Class of 2006. As noted in Chapter 1, prior evaluation reports have highlighted particular difficulties in meeting the CAHSEE requirement faced by students in special education programs. We have several times recommended consideration of alternatives for these students. In 2004, the California legislature passed Senate Bill (SB) 964, calling for a panel to identify options or alternatives for students in special education program and requiring a contractor to support the work of this panel and report on options that are identified.

Pursuant to requirements of SB 964, a report was submitted to the California legislature in spring 2005 recommending alternative graduation assessments and requirements for students receiving special education services (Rabinowitz, et al., 2005). The SB 964 report identifies three types of options for students receiving special education services. First, there are options for *alternate forms of testing* to be sure students receiving special education services have adequate opportunities to demonstrate what they know and can do. Second, there are options for *modifying the CAHSEE requirement*. The main recommendation in this area, to defer the requirement for students receiving special education services, is based on the premise that instructional opportunities have not been adequate to provide sufficient opportunity for students receiving special education services to learn the required material. The deferral is also recommended to allow time to develop alternative requirements, such as coursework, that special education students might pass in order to receive a diploma. Finally, there are options concerning *alternative types of diplomas* for students who are not able to demonstrate full mastery of the CAHSEE standards.

Specific recommendations included in the SB 964 report (Rabinowitz, et al., 2005) are reproduced here. Recommendations for alternative assessment formats were:

1. While several alternative assessment formats (with and without accommodations) hold great promise as viable alternatives/supplements to CAHSEE, none has met sufficient technical or feasibility standards for full-scale implementation in California as an *equivalent alternative* to CAHSEE. Therefore, none should be implemented until evidence is available that its implementation will meet standards of equivalence and have incremental validity relative to CAHSEE for students with disabilities.
2. The CDE needs to determine criteria for determining when alternative assessment formats are ready for statewide high-stakes implementation.

3. The CDE should develop and implement a focused research agenda on the technical adequacy (e.g., reliability, validity, equivalence) and feasibility of promising alternative assessment approaches for students with disabilities.

The specific recommendation regarding graduation requirements was:

> Use successful student completion of coursework independently certified as equivalent to CAHSEE-level content as a substitute for passing all or part of the CAHSEE. This recommendation cannot take effect until the development and implementation of all necessary infrastructure to support this option is completed (e.g., professional development, monitoring, tracking/information systems).

Specific recommendations regarding diploma options were:

1. Continue school and system accountability by collecting and reporting CAHSEE data for all students and subgroups, while delaying the graduation requirement of passing CAHSEE for students with disabilities for a period of up to two years. Award students with disabilities a standard high school diploma upon completion of all other non-CAHSEE requirements during this period.
2. If the CAHSEE graduation requirement is not delayed beyond the graduation class of 2006, develop and implement a multiple-tier diploma for students with disabilities in time for that graduation class.
3. Continue to offer the waiver process and certificates of completion for students with disabilities under current statute and regulations.

HumRRO proposed an amendment to the current evaluation contract to conduct analyses and provide information relevant to the options identified in the SB 964 report. Before adopting specific recommendations, policy makers need answers to questions such as:

- How feasible is each recommendation?
- How long would it take to implement the recommendations and are there unresolved issues that must be resolved?
- How effective will each recommendation be in achieving fairness in diploma decisions for students receiving special education services?

As part of our independent evaluation, HumRRO conducted additional analyses of information collected as part of our current work in the ongoing study of instruction, additional analyses of 2004–05 CAHSEE test results, and analyses of supplemental data on special education services that could be linked to CAHSEE results. These analyses were designed to further assess the scope of the problem leading to the recommendations in the SB 964 report and to help assess the feasibility and potential

impact of these recommendations. Results of these analyses are presented in this chapter.

One Solution May Not Fit All

One of HumRRO's biggest concerns with the recommendations in the SB 964 report is that students receiving special education services are treated as a single group, with no recognition of vast differences in terms of needs and services within this group. It is implied that the various options identified from alternative diploma tiers through deferral of the CAHSEE requirement would apply equally to all students in this population.

Our strategy for identifying different groups within the population of students receiving special education services, here called students with disabilities (SD) was to examine information about the curriculum and services received by students within this population and see whether students in some service and curriculum categories are able to master the content and skills required to pass the CAHSEE.

We also sought to identify service categories where few students are able to pass the CAHSEE. It is possible that students in these categories will need alternative goals and recognition than those provided by the CAHSEE. It is also likely, of course, that many students in these categories simply need to be challenged and helped in different ways. Information provided from these analyses may also be helpful to educators recommending or deciding on appropriate services for students with disabilities.

Supplemental Data on Students Receiving Special Education Services

A first step in our analysis was to gather and analyze more information on differences in special education services and the degree to which students receiving these different services are having difficulty passing the CAHSEE. To this end, CDE provided data from the California Special Education Management Information System (CASEMIS). Two files were provided, one containing data from December 2004 and the other containing data from June 2004. The June 2004 data are being used to assess changes over time. The results of this assessment will be included in HumRRO's February 2006 biennial report. The former was matched to the 2005 CAHSEE results, including 10th grade data from the February, March, and May 2005 administrations and 11th grade data from the September 2004 through May 2005 administrations.

Neither the CAHSEE nor the CASEMIS files contained a unique and reliable student identifier. Several passes were made to match the files using school code, name, birth date, sex, special education status, and English learner status. In the first pass, all of the CASEMIS data (including different grades) was matched to all of the CAHSEE results for a given grade (including students not flagged as special education). A relatively strict criterion was used in accepting matches to minimize the number of false matches. In subsequent passes, the criterion was relaxed in a controlled manner.

For the CASEMIS, this meant only unmatched cases in the target grade. For the CAHSEE, only unmatched cases flagged as special education students were used. A less strict criterion was used for accepting matches to reduce the number of false non-matches.

Table 7.1 shows the results of matching the December 2004 CASEMIS data to the 2005 CAHSEE 10th and 11th grade results. Overall, 70.3 percent of the 10th grade CASEMIS records were matched to CAHSEE 10th grade records and 60.8 percent of the 11th grade records were matched to CAHSEE 11th grade records. The lower percentage for 11th graders reflects, in part, the fact that some students had already passed the CAHSEE and did not need to test as 11th graders and possibly also greater volatility in enrollment over time for 11th grade special education students. For both grades, CASEMIS information was found for over 80 percent of the CAHSEE students flagged as receiving special education services.

Some of the unmatched CASEMIS and CAHSEE records were probably the same students with some error in their identifiers. Still, the larger number of unmatched CASEMIS records indicates that at least 10,000 students in the CASEMIS data from December 2004 did not take the CAHSEE in spring 2005.

We looked at the match rate for different categories of students to identify types of students who were less likely to take the CAHSEE. Table 7.2 lists categories defined from the CASEMIS variables with significantly low match (CAHSEE participation) rates and shows the number of students in the category and percent of matches.

There are at least two possible reasons for lower-than-expected match rates. First, the students in the category may not be on a diploma track and thus not encouraged to take the CAHSEE. For example, students with a primary disability code indicating mental retardation may be in this category. One other possibility is that students in the category may be in transition. By the time of CAHSEE testing, they might be in a different school, making it much harder to find them, or not in school at all. Students in juvenile court schools or correctional facilities may be an example of this second possibility.

Table 7.1. Number of Students in the CASEMIS Files by Grade Matched to CAHSEE Results by Grade

Match Category	Grade According to CASEMIS						Flagged as SD on CAHSEE
	9*	10	11	12	15	Total	
Students on the December 2004 File Matched to CAHSEE 2005 10th Grade Results							
Original number of CASEMIS records	57,654	50,992	44,762	40,382	1,556	195,346	
1. Matches of all records on School+ Part Name	2,146	31,565	542	44	3	34,300	32,593
2. Matches of 10th grade records on Part Name, Birth Date	0	3,713	0	0	0	3,713	3,713
3. Matches of remaining 10th graders on School and Birth Month	0	589	0	0	0	589	589
Total Matched Records	2,146	35,867	542	44	3	38,602	36,895
Grade 10 CASEMIS Records Not Matched		15,125					
CAHSEE Grade 10 SD Records Not Matched							5,782
Students on the December 2004 File Matched to CAHSEE 2005 11th Grade Results							
Original number of records	57,654	50,992	44,762	40,382	1,556	195,346	
1. Matches of all records on School+ Part Name	400	1,998	24,199	613	1	27,211	25,525
2. Matches of 10th grade records on Part Name, Birth Date	0	0	2,595	0	0	2,595	2,595
3. Matches of remaining 10th graders on School and Birth Month	0		427	0	0	427	427
Total Matched Records	400	1,998	27,221	613	1	30,233	28,547
Grade 10 CASEMIS Records Not Matched			17,541				
CAHSEE Grade 10 S.E. Records Not Matched							5,942

* Note. When matched, these were 9th grade students in the CASEMIS data file who were 10th graders in the CAHSEE data file.

Table 7.2. Types of 10th Grade Special Education Students with Low CAHSEE Participation

Student Category	Number of Students	Percent Match
All 10th Grade CASEMIS Students	53,727	72%
Primary Disability Code		
10. Mental Retardation	3,158	25%
60. Emotional Disturbance	3,987	55%
70. Orthopedic Impairment	822	42%
120. Autism	959	44%
School Type		
19. Other Public School or Facility (such as a store-front transition program)	586	22%
20. Continuation School	966	46%
30-32. Juvenile Court School, Community Schools, or Correctional Institute or Facility	1,321	29%
40-45. Home Instruction Based on IEP Team Determination or Hospital Facility	307	37%
70-79. Nonpublic Day or Residential School or Other Nonpublic Agency	1,970	29%
Residential Status		
60. Incarcerated Institution	497	23%
Special Education Service(s) Received		
42. Special Day Class in Public Separate Facility	786	27%
90. Transportation Services	3,862	38%
Time Away from General Education Instruction During the Day		
90 – 99 Percent	1,081	29%
100 Percent	4,226	35%

Note. Based on matching 10th grade students in the December 2004 CASEMIS file with 10th grade students taking the CAHSEE in February through May of 2005.

Passing Rates for Students Receiving Different Special Education Services

We examined a number of variables describing the nature and extent of special education services provided and some characteristics of the students receiving these services. The first variable indicated the percentage of time the student was outside the general education class to receive special education instruction or services during the school day. Table 7.3 shows that students who were away from the general education class more than 50 percent of the time were much less likely to pass the CAHSEE as 10th graders than students who were not removed from regular instruction as much.

Table 7.3. Number of Students and Percent Passing by Time Away from Regular Instruction (Matched 2005 10th Grade Students)

Percent of Time Away from Regular Instruction	ELA		Mathematics	
	Number	Percent Pass	Number	Percent Pass
None	1,796	48.7%	1,806	46.6%
01 to 19 Percent	11,637	51.5%	11,630	49.1%
20 to 33 Percent	6,569	32.5%	6,570	29.0%
34 to 50 Percent	5,900	23.8%	5,889	20.0%
51 to 89 Percent	9,965	9.8%	9,919	8.7%
90 to 99 Percent	308	22.1%	307	20.5%
100 Percent	1,429	28.3%	1,388	22.6%
All Students Receiving Special Education Services	37,604	31.5%	37,509	29.0%

Note. Numbers differ for the ELA and mathematics tests because some students only took one of the tests.

As shown in Table 7.3, more than one-third of students receiving special education services are able to spend at least 80 percent of their day in regular instruction. Over half of these students passed the CAHSEE ELA requirement in the 10th grade and very nearly half passed the mathematics requirement. Except at the extreme, CAHSEE passing rates declined as students spent more time outside of regular instruction. Fewer than 10 percent of students who are in regular instruction at least 10 percent but less than 50 percent of the time were able to pass the ELA requirement and even fewer passed the mathematics requirement. Further information is needed on students who were outside of regular instruction essentially all of the time to see why they had somewhat better success with the CAHSEE.

Table 7.4 shows the number of students taking each part of the CAHSEE who received different types of services and their rate of passing. The first three categories shown are relatively non-intensive and about 40 percent of the students receiving these services were able to pass the CAHSEE ELA or math tests. Well over half of the students with disabilities received one or more of these services. At the same time, over a quarter of the students with disabilities taking the CAHSEE were in special day programs in public integrated facilities. Only about 10 percent of these students were able to pass the CAHSEE tests.

Table 7.4. Number of Students and Percent Passing by Type of Service Received (Matched 2005 10th Grade Students)

Type of Service	ELA		Mathematics	
	Number	Percent Pass	Number	Percent Pass
Regular Class with Accommodation	803	38.9%	799	39.1%
Non-intensive program (learning center)	1,766	45.0%	1,754	39.3%
Resource Specialist (Non-intensive)	21,339	39.9%	21,362	37.1%
Special Day Inclusion Services	181	20.4%	174	23.0%
Special Day in Public Integrated Facility	11,758	11.2%	11,674	9.5%
Special Day in Public Separate Facility	203	32.0%	196	20.4%
Language and Speech	4,262	26.5%	4,247	28.3%
Vocational Education Training	2,413	25.5%	2,447	23.7%
Individual and Small Group Instruction	826	34.3%	813	28.2%
Vision Services	156	55.1%	157	49.7%
Psychological Services	846	34.0%	852	28.5%
Transportation Services	1,428	27.5%	1,407	22.4%
Other Services	8,182	29.5%	8,146	25.6%
All Students Receiving Special Education Services	37,604	31.6%	37,509	29.0%

Note. Students may have received more than one type of service.

Table 7.5 shows the relationship of the type of service received and the percent of time away from regular general education instruction. The majority of students receiving the first three types of services were away from regular instruction less than half, and in most cases less than 20 percent of the time. This was also true of students receiving vision services. By contrast, most students in special day programs were receiving general education instruction less than half the time. Results in Table 7.3 above, indicate that students away from instruction 51 to 89 percent of the time had the lowest passing rates. As shown in Table 7.5, these are predominantly students in special day programs in public integrated facilities. Students in day programs in separate facilities received separate instruction nearly all of the time. They were away from general education instruction over 90 percent of the time. These students passed the CAHSEE at somewhat higher rates than students in integrated facilities, although the passing rates were still quite low.

Table 7.5. Percent of Time Outside Regular Instruction by Type of Service Received (Matched 2005 10th Grade Students)

Type of Service	Percent of Time Away from Regular Instruction			
	< 20%	21%-50%	51%-89%	90%-100%
Regular Class with Accommodation	**49.8%**	28.9%	18.9%	2.4%
Non-intensive program (learning center)	**61.1%**	33.3%	5.1%	0.5%
Resource Specialist (Non-intensive)	**48.5%**	**44.7%**	6.1%	0.7%
Special Day Inclusion Services	24.6%	32.8%	**36.1%**	6.7%
Special Day in Public Integrated Facility	5.2%	17.3%	**71.1%**	6.4%
Special Day in Public Separate Facility	7.1%	5.7%	21.8%	**65.4%**
Language and Speech	32.9%	26.5	**34.6%**	6.0%
Vocational Education Training	34.0%	32.4%	31.1%	2.5%
Individual and Small Group Instruction	35.8%	38.9%	12.9%	12.4%
Vision Services	**47.0%**	27.4%	21.3%	4.3%
Psychological Services	33.0%	23.1%	30.6%	13.3%
Transportation Services	11.5%	13.1%	**43.4%**	**32.0%**
Other Services	30.4%	27.3%	30.7%	11.6%
All Students Receiving Special Education Services	35.5%	33.1%%	26.7%	4.7%%

Note. Row percents add to 100% except for rounding. Bolded numbers indicate percents well above column average.

Table 7.6 shows the number and percent of matched 10th grade students in each primary disability category and the ELA and math passing rates for students in each of these categories. The vast majority of students with disabilities in the matched sample had specific learning disability as their primary disability code. These students passed the CAHSEE at relatively low rates, slightly below the average for all students in the matched sample. Students with vision, hearing, speech, or other health impairments passed the CAHSEE at relatively higher rates. Almost none of the students coded as having mental retardation passed the CAHSEE. These students are underrepresented in this matched sample, because many students coded in this category on the CASEMIS file did not take the CAHSEE at all as indicated in Table 7.2 above.

Table 7.6. Primary Disability Codes for 10th Grade Students Receiving Special Education Services with CAHSEE Success Information

Primary Disability Category	Matched 10th Grade Students in the Category		Percent Passing CAHSEE in 10th Grade	
	Number	Percent	ELA	Math
010 = Mental Retardation	801	2.1%	2.7%	1.7%
020 = Hard of Hearing	399	1.0%	41.6%	43.3%
030 = Deaf	209	0.5%	19.8%	31.1%
040 = Speech/Lang. Impairment	1,840	4.8%	37.1%	38.7%
050 = Visual Impairment	176	0.5%	62.4%	53.2%
060 = Emotional Disturbance	2,173	5.6%	47.2%	37.3%
070 = Orthopedic Impairment	346	0.9%	45.0%	37.2%
080 = Other Health Impairment	2,222	5.8%	53.1%	45.8%
090 = Specific Learning Disability	29,826	77.3%	28.6%	26.5%
100 = Deaf-Blindness	1	0.0%		
110 = Multiple Disabilities	86	0.2%	22.9%	22.2%
120 = Autism	425	1.1%	50.6%	51.6%
130 = Traumatic Brain Injury	98	0.2%	23.2%	26.0%
All Matched Students	38,602	100%	31.6%	29.0%

Results for Students Receiving Special Education Services Who Retested in 11th Grade

We also matched 11th grade students in the December 2004 CASEMIS file with CAHSEE results from the 2004–2005 administrations. There were over 21,000 students with CASEMIS information on special education services and CAHSEE data from the student's initial attempt in the 10th grade and retest(s) in the 11th grade.

Table 7.7 shows the initial 10th grade score and retest gain score for students by the percent of time students were away from regular instruction during the day. The results are similar to those shown for 2005 10th graders on their first attempt at the CAHSEE (Table 7.3 above). Students who were away from regular instruction over half of the time had average initial ELA scores of 310 (40 points below passing) and average initial math scores of about 320 (30 points below passing). By comparison, students away from regular instruction less than half time had initial ELA scores averaging 320–325 (10 to 15 points higher) and initial math scores averaging 326–330 (5 to 10 points higher). In addition, the improvement in scores from 10th to 11th grade was considerably less for students who were away from regular instruction more than half of the time. At these rates of gain, it would take about two years for the average score for students in the top two categories to exceed 350, while it would take four to six years for score averages for students in the bottom two categories to reach this level.

Table 7.7. Number of Students and Average Score Gain by Time Away from Regular Instruction (Matched 2005 11th Grade Students)

Percent of Time Away from Regular Instruction	ELA			Mathematics		
	Number	Average Grade 10 Score	Average 2005 Gain	Number	Average Grade 10 Score	Average 2005 Gain
Less than 20 Percent	6,022	325.6	14.3	5,937	330.4	9.7
20 to 50 Percent	7,720	320.3	12.4	7,853	326.5	8.1
51 to 89 Percent	7,216	309.7	7.3	7,208	319.3	4.4
90 to 100 Percent	977	310.4	9.7	1,033	320.6	6.1
All Students Receiving Special Education Services	21,935	317.9	11.2	22,031	324.9	7.2

Note. Numbers differ for the ELA and mathematics tests because some students only took one of the tests. For all matched students, the standard deviation of the 10th grade scores was 18.6 for ELA and 13.7 for mathematics. The standard deviation of the gain scores was 21.0 for ELA and 17.5 for mathematics.

Table 7.8 shows average initial scores and average gain scores for students receiving different types of special education services. These results are also similar to the initial passing rate results shown in Table 7.4 above. Results for the two most frequent types of service are quite different. Over 11,000 students in this matched sample were provided with a resource specialist. These students had relatively high initial score averages (323.5 for ELA and 328.8 for math) and relatively high score gains between 10th and 11th grade (13.5 and 9.0 respectively). There were also over 8,000 students in special day programs in public integrated facilities. Initial score averages for these students were quite low, 309.3 and 319.1 respectively) and they had low average score gains (7.7 and 4.5).

Table 7.8. Number of Students and Average Gain by Type of Service Received (Matched 2005 11th Grade Students)

Type of Service	ELA			Mathematics		
	Number	Average Grade 10 Score	Average 2005 Gain	Number	Average Grade 10 Score	Average 2005 Gain
Regular Class with Accommodation	485	320.4	11.0	446	325.9	7.1
Non-intensive program (learning center)	873	323.0	13.9	880	328.8	8.3
Resource Specialist (Non-intensive)	11,582	323.5	13.5	11,615	328.8	9.0
Special Day Inclusion Services	89	316.9	5.3	95	323.7	0.9
Special Day in Public Integrated Facility	8,381	309.3	7.7	8,386	319.1	4.5
Special Day in Public Separate Facility	81	312.0	17.9	102	323.0	7.2
Language and Speech	2,359	314.7	9.8	2,272	322.9	7.2
Vocational Education Training	2,636	316.2	10.5	2,674	323.7	6.1
Individual and Small Group Instruction	420	318.9	10.7	423	325.2	7.4
Vision Services	58	312.8	12.0	71	324.0	9.5
Psychological Services	410	314.6	11.0	429	322.1	7.2
Transportation Services	773	310.8	9.4	785	320.3	6.3
Other Services	4,608	315.5	10.8	4,771	323.6	6.5
All Students Receiving Special Education Services	21,935	317.9	11.2	22,031	324.9	7.2

Note. Students may have received more than one type of service.

Accommodations and Modifications

The SB 964 report discusses the use of alternative forms of testing to allow students in special education programs different ways to demonstrate mastery of the required skills. Based on the findings reported in the preceding section, it would appear that students who are not able to participate in the regular curriculum could not master the required skills. Alternative forms of assessment will be unlikely to help these students if they are expected to master the same standards as all other students.

The CAHSEE does allow a number of accommodations for students who need them. In addition, some students take the CAHSEE with modifications specified in their IEPs, even though these modifications invalidate their scores. Students who test with modifications and score above the passing level are allowed to petition for a waiver from the CAHSEE requirement. Table 7.9 shows the number of students testing with accommodations or modifications by type of special education service received and also shows passing rates for each testing condition.

One point of note is that a significant number of students (about 4,483) took the mathematics exam with modifications, in nearly all cases using a calculator. It did not appear to help them much, which is not surprising, as the CAHSEE does not test computational skills to any great extent.

A significant number of students with disabilities did receive testing accommodations and many took the test with modifications. Students testing with accommodations or modifications may be different from students who did not receive accommodations in many significant ways. It is thus not possible to draw any firm conclusions from differences in passing rates for these groups. In addition, available data from either CASEMIS or CAHSEE do not provide information on other accommodations that students might be receiving in instruction but were not able to use on the CAHSEE. Additional information is needed to determine whether more students could demonstrate mastery of the CAHSEE standards with additional accommodations or with a different type of assessment altogether.

Table 7.9. Number of Matched 10th Grade Special Education Students and Percent Passing by Type of Service and Testing Condition

Type of Service	Statistic	ELA No Accom.	ELA Accom.	ELA Modif.	Mathematics No Accom.	Mathematics Accom.	Mathematics Modif.
Regular Class with Accommodation	Number	638	151	14	626	122	51
	% Pass	39.7%	33.1%	--	40.9%	23.8%	52.9%
Non-intensive program (learning center)	Number	1405	353	8	1,301	248	205
	% Pass	45.5%	42.8%	--	39.8%	37.9%	37.6%
Resource Specialist (Non-intensive)	Number	17,292	3786	261	16,608	2.744	2,010
	% Pass	40.2%	38.6%	38.7%	37.8%	34.7%	35.4%
Special Day Inclusion Services	Number	123	52	6	110	14	50
	% Pass	16.3%	28.9%	--	21.8%	21.4%	26.0%
Special Day in Public Integrated Facility	Number	8,307	3,119	332	7,597	2,088	1,989
	% Pass	10.9%	11.9%	12.7%	9.4%	10.4%	8.7%
Special Day in Public Separate Facility	Number	165	33	5	144	28	24
	% Pass	33.3%	27.3%	--	23.6%	14.3%	8.3%
Language and Speech	Number	3,218	950	94	3,008	659	580
	% Pass	29.1%	19.1%	14.9%	32.4%	22.3%	13.8%
Vocational Education Training	Number	1,802	571	58	1,699	455	293
	% Pass	28.5%	17.5%	12.1%	27.1%	15.8%	16.7%
Individual and Small Group Instruction	Number	653	143	30	615	90	108
	% Pass	35.1%	30.1%	36.7%	30.1%	23.3%	21.3%
Vision Services	Number	71	70	15	78	63	16
	% Pass	62.0%	51.4%	40.0%	52.6%	52.4%	25.0%
Psychological Services	Number	680	150	16	688	106	76
	% Pass	34.4%	34.0%	18.8%	29.3%	25.5%	25.6%
Transportation Services	Number	1,003	371	54	951	242	214
	% Pass	28.5%	24.8%	29.6%	22.9%	24.4%	17.8%
Other Services	Number	6,427	1,575	180	6,194	1,156	796
	% Pass	30.1%	27.0%	29.4%	26.9%	22.4%	20.1%
All Students Receiving Special Education Services	Number	29,205	7,706	693	27,642	5,384	4,483
	% Pass	32.7%	28.0%	24.7%	30.7%	25.3%	22.7%

Note. Students may have received more than one type of service. Passing rates were not computed for cells with fewer than 15 students.

Summary of Findings

The study revealed a strong relationship between the types of special education services a student receives and success on the CAHSEE. About half of the students analyzed receive non-intensive services such as in-class accommodations or a resource specialist and are able to spend more than 80 percent of their time in regular instruction. About half of these students pass the CAHSEE while still in 10th grade. Students receiving these services who had not passed in the 10th grade showed significant gains when they retested in the 11th grade. It seems likely that, with continued assistance these students will have a good chance of meeting the CAHSEE requirement. It is thus reasonable to ask that both the schools and these students themselves continue to work to meet the required standards.

About one-quarter of the students receiving special education services require more intensive assistance. These students participate in regular instruction less than 20 percent of the time and only about 10 percent of them pass the CAHSEE during the 10th grade. Those who retest in the 11th grade show only small gains in CAHSEE scores compared to other students. The services received by these students are specified by individualized educational plan (IEP) teams, who have statutory authority for making such judgments. There is no basis for second-guessing the services being provided to these students, although it is important to ask IEP teams to be sure student classifications are appropriate. It is less reasonable to hold these students responsible for mastering the skills assessed by the CAHSEE when they are not receiving instruction related to the skills tested by the CAHSEE. Alternate goals and some way of recognizing achievement of these alternate goals are needed for students in this second group.

Another quarter of the students we analyzed receive other combinations of services and show mixed results on the CAHSEE. More detailed information on the needs of these services and the specific services provided is needed to determine which ones have a reasonable chance of meeting the CAHSEE requirements.

Our general conclusion from these results is that it would be a mistake for legislators to impose a single set of alternatives on all students who receive special education services. Students who may be able to master the CAHSEE standards should not be lightly excused from doing so. Other students have little likelihood of mastering the CAHSEE standards and require other options to achieve graduation.

The number of students testing with accommodations or modifications did vary somewhat as a function of the type of service the student was receiving. Overall, however, passing rates for accommodated students were slightly lower compared to those who took the CAHSEE without accommodations. Students who received modifications would have passed at slightly lower rates still, had their scores counted. As noted above, however, additional information is needed to determine whether many students might benefit from some additional forms of accommodation or from a different form of assessment altogether. Under NCLB accountability requirements, states are

allowed to use an alternate form of assessment that, except for a small number of students with severe mental retardation, must allow students to demonstrate mastery of the same standards used with the regular assessment. So far, no states have shown significant number of students demonstrating mastery through such alternate assessments.

Chapter 8: Summary of Findings and Recommendations

Introduction

A wide range of information was gathered, analyzed, and reported during Year 6 of the CAHSEE evaluation. This information has implications for most aspects of the CAHSEE from the development of the test itself to how it is used and its impact on specific groups of students. In this final chapter, we provide a summary of findings from the various Year 6 evaluation activities. As in prior reports, we go on to offer both a number of general policy recommendations and specific technical recommendations for further improving the CAHSEE and its use.

Summary of Findings

Chapter 2: Item Review

HumRRO conducted reviews of CAHSEE test questions in 2000, before the first form was developed, and again in 2002 after the first administration of CAHSEE to 10th graders. We conducted a third review of CAHSEE test questions during 2005. The review included assessment of (a) the alignment of an intact operational test to the content standards using Webb's alignment method and (b) how well the test questions conform to emerging principles of universal test design.

This year's review was prompted by two important policy questions. First, we asked whether revisions to the test specifications in 2004, when the CAHSEE was restarted for the Class of 2006, resulted in an accurate assessment of students' knowledge. The revised math test was less difficult than prior CAHSEE forms. It was important to know whether the new forms covered the math standards in sufficient depth to answer this question. Second, we asked if there were ways of removing unintended barriers English learners and students with disabilities, whose scores have been significantly lower than for other groups. We examined universal test design principles and research to provide focus on ways of creating test questions that are as accessible as possible for these groups of students.

The following are key findings with respect to alignment. Reviewers had questions or comments on a number of specific questions; these comments are being provided to CDE and the test development company for their consideration and review.

ELA

1. Some issues were noted with the depth of knowledge of questions on the ELA test although the overall results showed acceptable alignment.
2. Reviewers wanted to use the essay responses to measure additional or different content standards beyond those in Writing Applications.

Math

3. The depth of knowledge of the math questions matched the test content standards well; the test was not inappropriately easy or difficult.

4. Reviewers had difficulty matching test questions to the mathematical reasoning standards, which was not surprising since all of these questions also assessed content standards in other areas.

In reviewing the appropriateness of the CAHSEE questions for English learners and students receiving special education services, reviewers again had some questions and comments about specific questions. These are also being forwarded to CDE and the test developers for their consideration and review. Overall, the current process was judged to yield acceptable results. Several recommendations for continued improvement of the CAHSEE item development process with respect to principles of universal test design include the following:

1. Ensure the CAHSEE is designed to optimize access by all groups of students.
2. Extend item-level analyses to include indicators of different problems for English learners or students receiving special education services.
3. Make changes to future CAHSEE tests at the whole-test level first.
4. Revisit regularly issues related to alignment between the tests and the California Content Standards.

Chapter 3: Results from the CAHSEE Administrations

Results from the five CAHSEE administrations during the 2004–05 school year were analyzed separately for 10th grade students in the high school Class of 2007 and 11th grade students in the high school Class of 2006. The results for 10th graders in the Class of 2007 were very similar to last year's results for 10th graders in the Class of 2006. Passing rates improved slightly for the ELA exam and were about the same for the mathematics exam. Passing rates for different demographic groups were also largely unchanged. Students receiving special education services continued to have considerably more difficulty in passing the CAHSEE than all other groups of students.

Students in the Class of 2006 who retested as 11th graders showed some improvement in their scores. About half of those testing each part had passed that part by the end of the 11th grade. Conversely, about half of those retested members of the Class of 2006 still have not passed. In addition, some unknown, but possibly large number of students, who did not pass in 2004 appears not to have retested in 2005. We could not find 11th grade 2005 test records for nearly 45,000 students (about 10% of all 2004 10th graders) who tested but did not pass in 2004. Some of these students likely did test in 2005, but with identifiers that did not permit matching to their 10th grade results. Others have left school or been retained in 10th grade although accurate counts are not available for these conditions. With the implementation of a statewide student identifier system, this type of gap in knowledge of what happens to students in the testing process should narrow.

In addition to analyzing the results, we examined factors relating to test accuracy, including a review of test equating procedures, the raw-to-scale score conversion

tables, and analyses of the consistency with which the essays were scored. No significant issues were noted in any of these procedures.

Chapter 4: Impact of Instruction on CAHSEE

In Chapter 4 we analyzed district, high school, and feeder school survey and interview responses to determine the impact of instructional trends on success on the CAHSEE. We also compared survey responses between schools with and without relatively high concentrations of at-risk students (i.e., English learners, students receiving special education services, economically disadvantaged, Hispanic, and African American).

We continue to find a substantial proportion of high school teachers reporting that students arrive unprepared for high school courses. Both ELA and math teacher ratings were less optimistic in schools with high concentrations of EL, economically disadvantaged, and Hispanic students, as well as math ratings in schools with high concentrations of African American students. On the other hand, both ELA and math teachers rated students as more prepared in schools with high concentrations of students receiving special education services. When asked what factors limit the effectiveness of the courses they teach, teachers most often cited student motivation, low parental support, and low student attendance. This effect was more pronounced for remedial courses than for other courses. Parental support was rated as a greater problem for required supplemental courses targeted to remediation than for any other course type.

We investigated teacher credentialing and the assignment of subject-area credentialed teachers to courses and students. While three quarters of high schools report that nearly all their teachers hold appropriate credentials, in other schools at least a quarter of the teaching staff remains uncredentialed. Over half of schools report using some mathematics teachers with emergency credentials and a third of schools report some ELA teachers with emergency credentials. While EL students reportedly receive instruction from credentialed teachers at nearly the same rate as all students, students receiving special education services are more likely to receive both ELA and mathematics instruction from a teacher who does not hold a subject-area credential. ELA credentialing is lower in schools with high concentrations of African American students. Lower percentages of schools with high concentrations of EL, economically disadvantaged, Hispanic, and African American students report math teachers with subject-area credentials than do schools without such high concentrations of at-risk students.

HumRRO examined whether numerous survey responses were related to school-level CAHSEE performance. Among those factors that were related to higher CAHSEE pass rates were teacher subject-area credentialing, years of teaching experience, and articulation between the feeder middle school and the high school as well as coordination between special education and general education staff.

In in-person interviews, a small majority of general education math and ELA teachers at both high school and feeder school levels stated that the Class of 2006 was ready to be held accountable to the CAHSEE graduation requirement. However, approximately half of special education and EL teachers believe their students are not ready to pass the CAHSEE. A number of respondents emphasized that students need to be held accountable.

Chapter 5: Impact of CAHSEE on Instruction

Chapter 5 investigated trends in California education that may have been influenced by the introduction of the CAHSEE requirement. For example, alignment of instruction to California content standards has increased steadily over the past several years at both the high school and middle school levels and efforts are underway to ensure that the level to which content standards are being taught is consistent across teachers. Nearly all high school and middle school respondents identified one or more systems used to track student proficiency in the content standards.

Most high school and middle school teachers have participated in content-related professional development. Schools have focused attention on remedial courses, as evidenced by the fact that assignment of high school teachers to teach remedial courses closely paralleled—and in some cases, exceeded—the education level and years of experience of teachers in primary courses. High school department heads generally indicated their courses were demanding for students, although some differences were noted in schools with high concentrations of at-risk students.

Some exemplary programs (e.g., Advancement via Individual Determination (AVID), Student Success Team (SST)) were identified through site visit interviews. These may warrant further targeted evaluation to determine whether they would be effective in additional schools.

Chapter 6: Trends in Educational Achievement and Persistence During the Era of CAHSEE

Data sources outside the CAHSEE program can provide indications of the state of education in California. Observed trends over the past several years may reflect, in part, the far-reaching effects of the CAHSEE requirement for standards-based education and accountability. Since no students have yet been denied a high school diploma by virtue of not passing the CAHSEE, we provided baseline trend information in this report that will be augmented as the CAHSEE requirement takes hold. We analyzed enrollment levels, graduation rates, single-year and four-year dropout rates, participation in and performance on college entrance examinations, rates of completion of A–G courses, participation in and success on Advanced Placement (AP) exams, and enrollment rates of California high school graduates as first time freshmen in California college and university systems.

We inspected student responses to survey items administered with the CAHSEE for indications of trends in preparation for the exam and subsequent plans. Compared to the first time test takers in the Class of 2006, students in the Class of 2007 reported higher rates of perceiving the tests as important, expectation of high school graduation, plans to go to college, and that CAHSEE test questions addressed topics that had been covered in coursework. Responses of students in the Class of 2006 who tested as sophomores and then retested as juniors were matched and compared. In the 2005 administration, these students were more likely than they were in the 2004 to report perceiving the test as important, expecting to graduate from high school, and reporting they did as well as they could.

Compared to non-economically-disadvantaged students and those who passed the tests, disadvantaged students or those who did not pass the tests were more likely to (a) perceive the tests as more important to them, (b) make an extra effort besides regular course work to prepare for the tests, (c) indicate that the tests would make their high school graduation harder, (d) be uncertain about their high school graduation, (e) be nervous when taking the tests, (f) be unfamiliar with the test questions, and (g) report that the test questions were more difficult than regular course work.

A large majority of the ELA and math test takers reported that all or most of the topics covered by the test questions were covered in their courses. The most often mentioned reason by students who perceived the tests as difficult was “I have forgotten things I was taught about these topics.” About 10 percent of examinees reported that they “did not take the courses that covered these topics” and about 20 percent of them indicated having trouble with these topics when they were taught. Most test takers indicated that the tests were not more difficult than their course work.

Chapter 7: Results for Students Receiving Special Education Services

Our analyses revealed a strong relationship between the types of special education services a student receives and success on the CAHSEE. About half of the students analyzed received non-intensive services such as in-class accommodations or a resource specialist and were able to spend more than 80 percent of their time in regular instruction. About half of these students passed the CAHSEE while still in 10th grade. Students receiving these services who had not passed in the 10th grade showed significant gains when they retested in the 11th grade. It seems likely that with continued assistance these students will have a good chance of meeting the CAHSEE requirement. It is thus reasonable to ask that both the schools and these students themselves continue to work to meet the required standards.

About one quarter of the students receiving special education services required more intensive assistance. These students participated in regular instruction less than 20 percent of the time and only about 10 percent of them passed the CAHSEE during the 10th grade. Those who retested in the 11th grade showed only small gains in CAHSEE scores compared to other students. These students received services specified by individualized educational plan (IEP) teams, who have statutory authority

for making such judgments. There is no basis for second-guessing the services being provided to these students, although it is important to ask IEP teams to be sure student classifications are appropriate. It is less reasonable to hold these students responsible for mastering the skills assessed by the CAHSEE when they are not receiving instruction related to the skills tested by the CAHSEE. Alternate goals and some way of recognizing achievement of these alternate goals are needed for students in this second group.

Another quarter of the students we analyzed received other combinations of services and showed mixed results on the CAHSEE. More detailed information on the needs of these students and the specific services provided is needed to determine which ones have a reasonable chance of meeting the CAHSEE requirements.

Our general conclusion from these results is that it would be a mistake for legislators to impose a single set of alternatives on all students who receive special education services. Students who may be able to master the CAHSEE standards should not be lightly excused from doing so. Other students have little likelihood of mastering the CAHSEE standards and require other options to achieve graduation.

The number of students testing with accommodations or modifications did vary somewhat as a function of the type of service the student was receiving. Overall, however, passing rates for accommodated students were slightly lower compared to those who took the CAHSEE without accommodations. Students who received modifications would have passed at slightly lower rates still, had their scores counted. As noted above, however, additional information is needed to determine whether many students might benefit from some additional forms of accommodation or from a different form of assessment altogether. Under NCLB accountability requirements, states are allowed to use an alternate form of assessment that, except for a small number of students with severe mental retardation, must allow students to demonstrate mastery of the same standards used with the regular assessment. So far, no states have shown a significant number of students demonstrating mastery through such alternate assessments.

Recommendations

Policy makers face critical decisions about the CAHSEE as the Class of 2006 nears graduation. As in past years, we offer several general recommendations based on observations and findings from our evaluation activities. These recommendations are targeted to the Board and the legislature as they consider additions or modifications to policies concerning the CAHSEE and it use. We also offer several more technical recommendations for the continued improvement of the CAHSEE. These latter recommendations are targeted to CDE and to the test developers.

Key Policy Recommendations

General Recommendation 1: Keep the CAHSEE requirement in place for the Class of 2006 and beyond.

Approximately 68,000 students who were not able to demonstrate mastery of essential skills in the 10th grade have now, by the end of 11th grade, been able to do so. While we cannot offer solid evidence, it seems likely that many would not have done so without being identified through CAHSEE scores as needing additional help and being motivated by the CAHSEE graduation requirement to take advantage of the help that was available to them. It is also evident that the requirement motivated schools to expand programs to help students master the required skills both before and after initial CAHSEE testing.

It would be a disservice to students, parents, and educators to send a message that some or all of the students in the Class of 2006 do not have to master language arts and mathematics skills deemed to be critical for success after high school.

General Recommendation 2: Identify specific options for students who are not able to satisfy the CAHSEE requirement and implement them by June 2006.

Nearly 100,000 students in the Class of 2006 did not satisfy the CAHSEE requirement by the end of the 11th grade. With continued effort and help many of these students will be able to satisfy the requirement in time to graduate with their class. However, many of these students, perhaps half, will not. To date, nearly half of English learners and nearly two thirds of students with disabilities have not met the CAHSEE requirement. Score gains from 10th to 11th grade were smaller for these students than for other students. If current trends prevail, a significant number of students including a substantial proportion of English learners and students with disabilities will not have passed the CAHSEE by the end of 12th grade. Many of these students will be denied a diploma for failing to meet other requirements as well[12].

Our second recommendation is that schools, districts, and the state provide options for students who want to earn a high school diploma but still do not pass the CAHSEE by the end of the 12th grade. We would urge consideration of multiple options to recognize the varying needs of students with different likelihoods of mastering the CAHSEE skills. Some of the options may be interim steps while others may be required long term.

In considering different options for earning a diploma, a key policy question is whether to include options that, at least initially, may not require the student to

[12] According to the Pocketbook of Special Education Statistics 2002-03 (California Department of Education, 2005, p. 25), only 59 percent of students with disabilities who were in the 12th grade (or were 18 years of age or older) in 2002 and 2003, before the CAHSEE was required, exited high school with a diploma.

demonstrate the same level of mastery as currently required by the CAHSEE. One set of options would hold firmly to the skill requirements and provide options for students willing to spend additional time and effort to master the skills. Another set of options might require students to exert further effort to master the skills but allow some leniency in judging the extent of mastery achieved.

Whether the second set of options is considered may depend on how those making the decision view responsibility for some students' current inability to pass the CAHSEE. If the student has failed to exert effort in classes or attendance has been a problem or if the students lack parental support for participation in regular or supplemental instruction, the responsibility may be viewed as falling on the student. If, on the other hand, current instruction was poorly delivered or prior instruction failed to prepare students for more recent courses, then schools may share some responsibility for students who cannot pass the CAHSEE. If responsibility for not passing the CAHSEE is primarily attributed to students or their parents, it would be reasonable to require that any alternative way of demonstrating mastery meet the same high standards as the CAHSEE. If more responsibility is attributed to schools, it may be reasonable to grant students some leeway in mastering the full set of CAHSEE skills until the work necessary to develop a rigorous alternative is completed.

It is clear that students have had adequate notice of the CAHSEE requirement, even though some may have continued to believe that the requirement would be lifted. Students in the Class of 2006 were entering 7th grade when the content requirements for the CAHSEE were adopted and when the statewide requirement to take algebra was added.

All of the schools where surveys or interviews were conducted had programs in place to help students master the skills required by the CAHSEE. Still, many of these programs were not yet fully effective. Student motivation and preparation were frequently cited as key reasons why students participating in the programs still could not pass the CAHSEE. Some may argue that deficits in the development of prerequisite skills in the early grades, prior to the enactment of the CAHSEE requirement, may have left some students ill prepared to benefit from the courses and programs now offered.

In reviewing options for students who do not pass the CAHSEE by the end of the 12th grade, policy makers must decide how much weight to give arguments that some schools share responsibility for some students' poor preparation. Policy makers could decide that, on an interim basis, good faith effort and partial mastery of the CAHSEE skills are sufficient for earning a diploma. Alternatively, they may decide that students have had adequate opportunities and nothing short of full mastery of the CAHSEE skills should be required for a diploma.

We differ strongly from the general conclusion of the SB 964 report that the CAHSEE requirement should be deferred until alternative ways of demonstrating mastery of the standards and alternative diploma options for students unable to demonstrate mastery can be implemented with rigor. We believe it is better to keep the

requirement in place and implement options now, improving rigor over time as necessary. The state should avoid sending the message that students should not continue to strive to master the essential skills, but provide options now for students who do not do so.

Some general principles in considering options are:

1. Insofar as possible, options should be available to all students who need them.
2. Options should not excuse students and schools from continued effort to develop and demonstrate the skills assessed by the CAHSEE.
3. Every effort possible should be made to help students master the targeted skills; alternative diploma options should be reserved for students who clearly cannot access the general education curriculum.
4. Alternative routes should be announced publicly.

The following are examples of options that could still be implemented for the Class of 2006.

- Community College Program—Update community college programs that lead to a high school diploma to focus on the CAHSEE skills. Allow students who need it up to two additional years to master the CAHSEE skills and receive a diploma through participation in these programs. One advantage of this approach is that it would provide students with instruction in a different setting, not just repeating instruction that was previously ineffective.
- Senior-Year Portfolio—Allow districts to develop and implement a senior-year portfolio project for students they believe have mastered the required skills but are unable to demonstrate this mastery on the CAHSEE during the 10th and 11th grade. Additional alternate forms of assessment might also be implemented this year if they can be imported from existing efforts.
- Summer Course(s) After 12th Grade—Allow and encourage districts to develop a summer program for students who have not been able to pass the CAHSEE and grant diplomas to students who successfully complete this program. Separate ELA and math courses could be offered, with students required to take or pass courses only if they had not yet passed the corresponding test on the CAHSEE.
- Additional Years of High School—By statute, students in special education programs can continue their high school education until age 22. This option might be expanded to allow other students to take an additional year or two of high school as well. This option would be most reasonable if the opportunities provided go beyond the remedial programs to which the students already had access.
- Establish an Alternate Diploma or Graduation Certificate—Many districts already offer certificates of completion or other ways of recognizing accomplishment short of meeting the full set of graduation requirements. California might establish a statewide program for recognizing the

accomplishment of students who do not meet all diploma requirements but are able to demonstrate mastery of an alternate set of goals. For students in special education programs, this option might involve different mastery goals for each student. This alternative, however, would not have to be limited just to special education students. In the interim, an alternate diploma or certificate might be based on passing one part of the CAHSEE or scoring above a lower set of performance standards. Eventually, however, assessment of mastery should be targeted more directly to alternate content standards set for students unable to master the full content covered by the CAHSEE.

General Recommendation 3: Accelerate efforts to implement a statewide system of student identifiers and develop and maintain a database with information on students who have and have not satisfied the CAHSEE requirements.

It is unfortunate that policy makers have to wait for this report to get any estimate of how many students in the Class of 2006 have and have not satisfied the CAHSEE requirement. Even so, the estimates we provide are very approximate and will be subject to some debate by our critics. More exact information on the numbers of students yet to meet the CAHSEE requirement for each high school class is needed to design programs to help these students and to estimate funding requirements for these programs.

Currently, it is necessary to match student records from different administrations by name and birth date and a few other relatively stable student characteristics. Unfortunately, these fields do not always uniquely identify an individual student. An even bigger problem in combining results across administrations is the frequent inconsistency with which names, and sometimes birth dates, are coded.

The student identifiers now under development were not generally used with the 2004-05 CAHSEE administrations. It would be highly desirable to go back and add the statewide identifiers to the records for 10th graders who took the CAHSEE in February, March, and May 2005, so that 11th grade results can be merged unambiguously with this information.

General Recommendation 4: Collect data from districts on students who are not able to satisfy the CAHSEE requirement by June 2006 and use this information to further refine options for students having difficulty mastering the skills assessed by the CAHSEE.

An important policy question for evaluating the impact of the CAHSEE is how many students will be denied a diploma due to the CAHSEE requirement alone. Currently there is no statewide database with information on satisfaction of other graduation requirements, some of which may be district-specific. While there is some uncertainty about who has met the CAHSEE requirement, there is also uncertainty as to

how many students have met the algebra course requirement or any other specific graduation requirement. Most schools review graduation requirements with students early in their senior year. With this information, they should be able to respond accurately to a statewide survey fielded in the latter half of the school year. Alternatively, the department might wait until after June to see how many students who were seeking a diploma were actually denied the diploma and why.

Specific Technical Recommendations

Specific Recommendation 1: A number of suggestions for improving specific test questions, particularly with respect to making them accessible to all students, were offered based on the item review. These might provide useful insights as the test development contractor continues to improve and enhance its item development and review procedures.

Continual process improvement is an important concept in business and it applies as well to test development. Instructions to item writers and the monitoring of their efforts can be improved based on feedback from subsequent reviews of the output. Results from our review of CAHSEE test questions can be used along with results from the numerous reviews routinely conducted by ETS to improve the item development process.

Specific Recommendation 2: Statistical review of test items should include checks for differential item functioning for students with disabilities.

When items are tried out before operational use, they are routinely checked for statistical indication of inappropriately greater difficulty for different groups of students based on gender, race/ethnicity, and English proficiency (for mathematics items only), a problem referred to as “differential item functioning” (ETS, 2004). The same analyses could also be applied to students with disabilities to catch possible problems relating to universal test design. Additional attention to the field test design may be needed to ensure adequate samples from these groups to support such analyses, but the results would demonstrate the effectiveness of current design procedures and identify any issues of universal design that might need further attention.

Specific Recommendation 3: Information on the curriculum and services received by students in special education programs was quite useful. CDE may want to link this information to CAHSEE results on a more regular basis.

The consistent use of statewide student identifiers by both CASEMIS and CAHSEE would make this linkage more reliable and much easier to accomplish. Policy makers also will need to address privacy issues in building a database with better information on relationships of special education services to CAHSEE success.

Specific Recommendation 4: Conduct a field trial or demonstration project with a small number of districts that already use student identification codes to model the design and use of detailed student data.

Analyses in this report were constrained by the absence of linked student data. Much richer analyses could be conducted if linked data were available to assess which students have passed the CAHSEE, met other graduation requirements, and taken which courses. Currently, for example, there is no mechanism to determine which students who have not yet passed the CAHSEE are not on track for timely graduation, for other reasons. This field trial could yield valuable guidance for districts interested in improving their data management and utility.

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