



**California Long Term Math Policy Draft
CMC Feedback from Membership
December 16, 2006**

To ensure as much feedback as possible from our membership for the Draft Math Policy, the California Mathematics Council experimented with some new technology based techniques. CMC sent out an eblast to 9,000 members with a link to a video presentation outlining the recommendations from the Draft Math Policy. Our members were also able to download the draft document and view a list of people invited to be on the Work Group. Members were asked to complete a survey after viewing the video presentation or reading the draft document - their choice - so that their feedback could be shared at the December 16th meeting. 405 people completed the survey. Over half of the participants represented teachers and other educators who work with students in grades 6-12.

The feedback from CMC members occurs in two parts. First, is the analysis of data specific to items on the survey. Second, is a summary of mathematics educator comments for each set of recommendations. More than 100 people responded with comments for each set of recommendations. It was determined that only statements that were reiterated a minimum of ten times would be included in the summary. This number was chosen as a means of focusing on the themes of the comments while also reducing the overall length of the summary from a one time comment that may not be echoed by other members.

Standards Recommendations:

97.3% of our participants agree that our state needs to develop a process to revise the standards. 87.6% believe that we need a set of 8th grade standards, in addition to Algebra 1 standards.

Stakeholders to be involved in the standards revision process were as follows (survey participants could identify more than one type of stakeholder):

Educators:	99.5% (selected by 401/405)
Parents:	80.5% (selected by 325/405)
Students:	71.3% (selected by 288/405)
Business:	63.8% (selected by 258/405)
Legislators:	32.7% (selected by 132/405)

97% of CMC participants supported a transparent decision making process with demonstrated effort by the SBE to solicit feedback from stakeholders.

Summary of Comments: Revision of Standards

Teacher frustration with the standards was the most frequent comment: too many, too prescribed, poor articulation between grades and poor articulation to AP curriculum. Many members stated

that California should be looking at the standards of other countries, other states that are experiencing success in mathematics instruction and the Common Core standards as part of a revision process. Many comments reflected the need for fewer standards with the opportunity to teach those standards to mastery with a focus on understanding concepts, developing reasoning skills, number sense and the use of a variety of strategies to solve problems. Comments suggested a need to scale back on the number of standards in elementary so that a stronger foundation in the areas mentioned above could be laid for the work of students in later years. Several comments questioned the notion that California is a leader in standards based education or that we do have “world class standards.” The most frequent comment concerned that of specifying the grade level for a student to take Algebra 1 – this is not helpful to the successful learning of mathematics. Comments from teachers who identified themselves as having taught Algebra through Calculus, stated that our current Algebra standards are out of date and not appropriate for the current generation of students. An ongoing theme in comments referred to the development of standards that focus on the 21st Century needs of our students rather than the 19th Century. An additional theme was the concern of penalties for students taking the General Math test – if the goal is success, schools should not be penalized for preparing students for success in Algebra via the SBE approved Algebra Readiness programs. There were repeated comments for a transparent process for revising standards with a need for input by a variety of stakeholders.

Instructional Materials Recommendations

51.3% of participants stated that their school/district **adopted** a mathematics intervention program.

57.6% of participants stated that their school/district **adopted** an algebra readiness program.

53.9% of participants stated that their district had **not** planned to adopt an algebra readiness program before the SBE vote in July 2008 make the Algebra 1 CST the test for 8th graders.

Our participants support the recommendation that the adoption process should include:

Technology based materials	82.4% (selected by 309/375)
Materials like online Open Education Resources	76.7% (selected by 288/375)
Reduced pressure on elementary teachers to implement new materials adoptions in core academic subjects.	79.2% (selected by 297/375)

Summary of Comments: Instructional Materials

Feedback on technology was huge. Comments reflect a range of support for technology – some very strong others cautious. The concern is the logistics and mechanics of having technology available. While some members support the use of technology in mathematics education, they also promote the value of manipulative or hands on programs to develop understanding of mathematics concepts. Common themes were:

- How closely the online programs would align with state standards and mixed reviews on the use of online Open Education Resources.
- The need for professional development for intervention materials, algebra readiness programs **and** core mathematics programs.
- The need to alter the adoption process completely with local districts and schools being given more control over the materials they select for instruction.

Teacher Preparation Recommendations:

90.3% of our participants stated that credentialing programs do not ensure that future teachers receive enough mathematics content.

84% stated that credentialing programs do not ensure future elementary teachers receive instructional knowledge for teaching mathematics.

56% stated that credentialing programs do not ensure future secondary teachers receive enough content knowledge specific to the teaching of mathematics.

56.4% of participants stated that an assessment of mathematics teaching proficiency (analogous to the RICA) would ensure teacher content and instructional strategy knowledge.

Summary of Comments: Teacher Preparation

Most comments centered on two areas: 1) Whether a test can accurately assess content knowledge **and** instructional strategy and 2) Numerous suggestions to improve the credentialing process. With regard to assessment of mathematics content and strategies, many comments suggested that professional development, work with a mentor teacher and use of a mathematics specialist or coach would be far more effective. Suggestions for improving the credentialing process included providing more coursework on mathematics content and best practice for instruction for all teachers – a balance between these two areas is important for strong instruction. Participants also stated that teacher candidates need more classroom experiences, more supervision or perhaps experiences as an intern teacher who partners with a mentor. Many participants stated that teacher preparation programs vary and it is hard to determine a one size fits all solution for increasing preparation for mathematics instruction. Also suggested was increased staff development for new teachers and an induction process to support new teachers.

Professional Development Recommendations:

Participants were asked to indicate their agreement with the identified professional development focus in the Draft Math Policy.

91.6% agreed with the focus on mathematics content for upper elementary and middle school teachers and administrators.

88.6% agreed with the focus on mathematics pedagogy for upper elementary and middle school teachers and administrators.

84.3% agreed with the focus on algebra readiness and intervention instructional materials.

90.9% of our participants agreed that there is a need for elementary mathematics specialists as described by the Draft Math Policy.

Summary of Comments: Professional Development

The recommendation to invest in the training and development of Elementary Math Specialists was well received by most of the respondents. There was a concern that administrators need to safe guard the specialists' time for work with students and teachers, rather than using the person in other capacities. Several respondents recalled having Math Specialists 20 – 30 years ago and said they were helpful in improving the quality of mathematics instruction. There was an expectation stated that a Math Specialist should have strong content background and knowledge about a variety of strategies to teach math, with a focus on developing understanding. Many felt that the use of a Math Specialist would be productive at all grade levels.

Most comments addressed the need for professional development and lamented the lack of opportunity in our state for quality mathematics professional development for teachers at all levels. Several suggested that staff development encompassing content, pedagogy and math

coaching should be the focus for our state. Some concern was expressed that staff development should focus on math content and instructional strategies rather than use of the materials for algebra readiness and intervention. Comments by participants who identified themselves as administrators - as well as teachers – supported the notion that administrators need professional development in mathematics too, so that the school could make more informed decisions of how to support students.

Student Assessment Recommendations:

When asked who should be involved in the “comprehensive conversation” about the appropriate state assessments that measure student achievement, participants were allowed to select as many stakeholders as they deemed relevant.

99.5% selected Educators (selected by 385/386)
69.5% selected Parents (selected by 269/386)
59.9% selected Students (selected by 232/386)
55.5% selected Business (selected by 215/386)
33.1% selected Legislators (selected by 129/386)

90.4% of participants stated they would like more access to test bank items and diagnostic tools.

Summary of Comments: Student Assessment

The comments made by our participants include many suggestions not presented in the Draft Math Policy. Themes for student accountability focused on the following ideas:

- Many members stated that our tests cannot continue to be multiple choice format only. Respondents wanted tests that are comparable to those used in other countries; constructed response, open ended items, performance based or project based work should be considered. Application of knowledge was suggested as a focus for assessment.
- An assessment system that could show growth for a student from year to year was viewed as meaningful.
- Concern about getting CST results sooner was frequently stated.
- Students that do not pass the CST should be able to demonstrate proficiency in another way. No single test should determine advancement or a diploma for a student.

Feedback on diagnostic testing and testing banks of items was mixed. Some welcomed the support and information, but posed the need for time to analyze the results of these items. They wanted parents to have access to the information as well. Others were concerned that this kind of information would encourage tracking through misuse, narrow the curriculum and increase the amount of testing for students in general.

Accountability Recommendations:

77.5% of our participants support the recommendation that students who score proficient on the Algebra CST should be exempt from the mathematics portion of the CAHSEE.

85.1% believe a focus on individual student growth will improve California’s current accountability system.

Summary of Comments: Accountability

While there was broad support of eliminating the CAHSEE for the student who scored proficient or advanced on the Algebra 1 CST, some were quite frank about doing it only if it made a difference in cost. Some questioned the assumption that successful completion of a test was the

same thing as learning and applying the information. Others stated that the CAHSEE is an embarrassment; at best it assesses that high school students know middle school standards. Still others stated that proficiency on the CAHSEE at least shows that students know real world skills, which might be more helpful than knowing algebra, which is very abstract and removed from real world connections. Again, the suggestion that California should look to other states and countries that have success in measuring student achievement for models.

While most of our respondents like the idea of an accountability system that focuses on student growth, they had questions about what that would look like and how it would be implemented. Most stated that a measurement of growth in learning is what education is about, rather than an arbitrary scale score that separates basic from proficient performance. A focus on individual student growth is a step in the right direction, but members questioned if growth could be measured via multiple choice exams that already compromise clear understanding of what a student really knows. Suggestions of constructed response, open ended items and performance based assessments were given as a way to improve assessment and gain more accurate information about student learning. Individual student growth results implied for some that corresponding tools and support would be available to address the diversity of needs for learners, especially students with special needs. Some felt that students would be more motivated by results that show individual growth over time. Several respondents stated that accountability focus on student growth should eliminate the punitive measures we have with our current system.

Student Support Recommendations:

When asked if the **approved intervention programs** were providing the support students need to improve mathematics performance:

7.6% of our participants said they did support student improvement.

25.1% stated that it was “too soon to tell.”

17% stated that they “were hopeful” and that they “see growth.”

15.5% stated that they did not see improved student performance.

33.9% stated that they were not using math intervention programs.

When asked if the **approved algebra readiness programs** were providing the support students need to improve mathematics performance:

10.1% of our participants said they did support student improvement.

22% stated that it was “too soon to tell.”

15.1% stated that they “were hopeful” and that they “see growth.”

15.1% stated that they did not see improved student performance.

37.7% stated that they were not using math intervention programs.

83.6% of participants support the development of an Algebra Success Plan for students prior to exiting elementary school.

Summary of Comments: Student Assessment

Statements about the use of intervention and algebra readiness programs took a broad view of mathematics education and identified practices that would reduce the need for interventions: fewer standards and more time to teach standards, instruction that meets the need of a variety of students, a focus on number sense, critical thinking and problem solving, teaching strategies that move students from concrete to representational to abstract experiences and identify struggling

students early – rather than waiting for them to fail before providing additional support were the most frequently mentioned options in place of providing intervention programs in 4-8 grade. Additional comments: large class size reduces the success of intervention, API penalties for algebra readiness – due to taking the General Math CST – prevent administration and districts from pursuing algebra readiness programs, the ability to offer intervention is specific to site ability to finance it – that goes against equal access to materials. There was concern that these programs would begin tracking students. A few members stated that 7th grade Pre Algebra was more rigorous than Algebra Readiness; it seemed odd to let students fail in 7th grade so they could get help in 8th. These teachers suggested the sequence was out of order.

The Algebra Success Plan met with mixed reviews through the participant comments, in large part because educators wanted more details on how this plan would be made, who would make up the plan, and what pathways were available to pursue for a student after the plan was made. There was a concern that elementary teachers might not know enough about what is required in algebra to develop a plan that would build toward successful completion of algebra; perhaps secondary teachers should help make the plan. Many thought the idea had possibilities, but were concerned that it would become mired in paperwork. Another concern was if there were no means to implement the plan, the plan would be worthless. Some participants thought the focus should be on a Mathematics Success Plan – and mentioned concern about the early and narrow focus on algebra when students still have other areas of mathematics to learn that could enhance their understanding of algebra.

Conclusion

This concludes the report of the California Mathematics Council feedback for the Draft Math Policy document. It is our anticipate that the comments thoughtfully gathered and submitted to the Math Policy Work Group will be helpful in providing a variety of perspectives on the recommendations. Educators are always looking to improve or refine the work before them. Teachers and administrators who are working with our standards, adopted programs and accountability system have much to say about how these three components are manifested at a school site and how they affect the learning of students. The suggestions for clarity of purpose and elaboration of details are submitted to support the refining of the recommendations, as they will chart the course for mathematics education in our state. We are pleased to have been involved in this work and are willing to support efforts as needed with the revisions recommended by the Work Group.

