Recommendations for Policy Makers and Federal Agencies

With support from the National Science Foundation, three conferences were heldin 2011 to identify actions needed to ensure successful implementation ofthe*Common Core State Standards for Mathematics* (CCSSM). These conferences dealt respectively with curriculum,professional development and assessment. Each conference resulted in a report*specifyingpriorities and action items. In subsequent work, leaders of the conference projects collaborated to produce a common set of priority recommendationsspanni ng the three conference themes. These actions are intended to inform agencies, foundations and other interes ted parties regarding importantstepsto achieve the goals of the CCSSM initiative, namely to improve mathe matics learning opportunities for all students.

1. Ensure that the Standards are a Living Document.
A *researchbased, transparent process dedicated to the improvement of the CCSSM over short, medium, and longterm time spans is needed. This process must be based upon expert advice and empirical evidence and involve the entire mathematics education community*.

Action Items:

A. Establish an oversight board involving CCSSO, the NGA, and the mathematics education community (perhaps through the professional societies) charged with responsibility for improving the CCSSM.

B. Create a process to support shortterm fixes, mediumterm adjustments, and longterm review and modification, as needed, based on expert advice and empirical evidence, and insulate this process from excessive political influence.

C. Assure transparency of the Standards improvement process and broad involvement of the mathematics education community, including teachers, special educators, mathematics education researchers and curriculum developers, mathematicians, and assessment specialists.

2. Ensure that the CCSSM, as Implemented and Assessed, Keeps the Promise of BOTH Career and College Readiness.
CCSSM is intended to prepare students for future careers as well as future schooling. Ensuring that this promise is fulfilled will be the responsibility of developers of curriculum and assessment, professional developers, and an important aspect of research into CCSSM effectiveness.
A. Form a new committee from the CCSSO, NGA, and the school mathematics curriculum design/development community to continue to study and make recommendations regarding the organization, content, and potential audiences for high school mathematics courses with special attention to college readiness in nonSTEM disciplines and career readiness. This committee must have representation from employers and the community colleges.

3. Adapt and Create Materials that Capitalize on Present and Emerging Technologies to Support CCSSM Implementation.

Curricula and professional development materials are needed that explicitly address the integration of the mathematical content and the mathematical practices of the CCSSM, are consistent with the emerging assessments, and will serve as the basis for the evolving research agenda. These materials must provide the focus and the coherence that are the promise of CCSSM.

Action Items:
A. Perform an independent analysis of the alignment of existing curricula with the mathematical content and practices of CCSSM, identifying areas in need of additional development and/or modification to strengthen alignment, connections to the practices, and coherence.

B. Encourage creativity and experimentation in the design and delivery of curriculum by providing adequate funding for new curricular design, development, fieldtesting, and evaluation with particular attention to the affordances of emerging technologies as tools for learning and doing mathematics.

C. Support partnerships to explore and test new curriculum development models that combine open source curricula materials and technological tools.

D. Support efforts to capitalize on the English Language Arts (ELA) Standards on "Reading and Writing in Science and Technical Subjects" by developing interdisciplinary materials linking mathematics and literacy.

4. Promote ResearchBased Opportunities for Teacher Learning Aligned with the CCSSM.
Teacher education and professional development should provide teachers with a coherent set of experiences, centered on the mathematical content and practices envisioned by the standards.
A. Create a national clearinghouse for CCSSMrelated professional development materials and programs that can serve as exemplars for statewide and district professional development programs.

B. Establish a targeted program solicitation that funds centrally organized statewide efforts to design, deliver, and monitor CCSSMrelated professional development programs at the regional and district level.

C. Support a collaborative effort among AMTE, MAA, NCTM, and NCATE to provide guidelines for higher education to develop more rigorous, technologyrich, and appropriate mathematics courses for grades K–12 teachers to assist them in supporting student learning and understanding as outlined in CCSSM.

5. Ensure the Content and Quality of the Mathematical Tasks Used in HighStakes as well as Classroom Assessments.
What is tested and how it is evaluated and communicated to students, parents, and teachers has a profound influence on what is taught by teachers and learned by students. Therefore, it is crucial that the broad expertise of the mathematics education community be engaged in the creation of new assessments that exhibit fidelity to both the words and spirit of the CCSSM.

Action Items:

A. Support partnerships among the curriculum design community and the assessment consortia in order to ensure curriculum expertise informs the formative and summative assessment design process and provides the community with robust exemplars of assessment tasks.

B. Ensure that the assessments evaluate student proficiency in the eight mathematical practices as well as on the content in the CCSS.

6. Support Research to Monitor and Learn from CCSSM Implementation.

The curriculum development, assessment, and professional development efforts created to strengthen implementation the CCSSM must be studied and monitored to inform course corrections that support effective implementation. Both expected outcomes and unintended consequences must be investigated and establish an evidence base for promising policies, programs, and practices, as well as unproductive efforts.

*A. Establish a program solicitation that explicitly targets enactment of the CCSSM initiative, thereby encouraging researchers from the broad community to engage in scholarly efforts to inform and improve CCSSMrelated efforts.***

* http://mathcurriculumcenter.org/commoncore.php?type=reports

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http://www.horizonresearch.com/reports/2011/CCSSMresearchagenda/research_agenda.php