

Comments on the Common Core State Standards

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I. CSSS are a step forward

- NGA has credibility
- Flexibility in implementation
- Process receptive to input from professional societies (e.g., ASA) and other stakeholders
- Efficiency and effectiveness: development and sharing of materials
- Student mobility

II. How Math Departments and Societies Can Help with Preservice Preparation

- For **elementary** teachers: Require *at least two* (preferably three) math content courses *focused on deepening understanding of elementary math content.*
- For **secondary** teachers: Require *at least one* math content course focused on deepening secondary math content.
- Give careful attention to materials and staffing for these courses.

- Preservice **secondary** math teachers need *at least two* probability/statistics courses.
 - The standard math stat sequence is *not* adequate.
 - Utah State: Composite Mathematics and Statistics Education Major

- **Middle grades** preservice math teacher programs need special attention
 - Varying state certification requirements may require different programs
 - Needs are in between elementary and secondary
 - Some focused courses needed
 - Often a “Stepchild”
 - Overlaps with “elementary math specialist”

Example of First Day Activity for Focused Preservice Middle Grades/Secondary Course

- Students are asked to translate a word description into equations.
- The translating problem is one that might be on the state's Algebra I End of Course Exam
- Students are also asked to describe their thinking in doing the translation.

(Example continued)

- Most students
 - translate the problem to equations
 - proceed to solve the equations
 - give their thinking for the *solving* process.
- When directed to the actual instructions, many students are not able to explain their thinking.
- One purpose of the course is to help them be able to explain.

III. More Considerations re Statistics

- Statistics \neq mathematics
 - Analogy: physics
- Statistics and probability require acceptance of uncertainty
- Teachers often have difficulties with the “spiral” curriculum, and with inserting probability/statistics into other courses.

IV.Looking Ahead

- The CCSS *will* need to be revised.
- But not too soon.
 - Have mercy on the teachers!
- Revision needs to be informed by implementation efforts.
- Implementation efforts need to be informed by possible revisions

Meanwhile ...

- Math needs to work more with other fields for “math (and stat) across the curriculum.”
- The Quantitative Literacy community needs to continue developing to be able to give organized input to include Citizenship along with Career and College Readiness in the CCSS.

“At no time or place in history have the mathematical and statistical reasoning demands on any people achieved the level that they have in the US now. ...[U]nless US education meets this challenge, many students will be unable to prosper and US democratic processes will be undermined.

Omission of "citizenship" in the heading only flags the problem. The standards themselves reflect this omission with only periodic passing references to solving problems concerning situations in the contemporary (really) real world. Missing the opportunity to make this critical adjustment in US K-12 mathematics and statistics will be rather tragic.”

-- Bernie Madison in ACE review of CCSS