



Building a Foundation: Rethinking Elementary Math Teacher Certification

High School to Postsecondary Alignment



Huddle 2: Professional Development for Mathematics Teachers

The ability of students to learn algebra and beyond starts with a strong foundation in the basic skills: adding, subtracting, multiplying, dividing, decimals, fractions, percents, basic geometry, and statistics.

Students need a teacher with strong math skills, mathematical pedagogy, and a general enjoyment of mathematics to help them build that strong foundation.

Goals:

- ★ Discussion of ideas to increase teacher preparedness to provide students with more knowledgeable teachers.
- ★ Discussion will include a shift in strategy for teaching assignments to provide students with highly credentialed math teachers.

Introduction: Rationale for Our Choice

Research says...

- ★ A key component in preparing students to succeed in mathematics in high school and beyond is to have effective elementary school teachers. (NMAP, 2008) (Georges, 2010)
- ★ The NMAP Report concluded that students' preparation for successful completion of algebra implies that students should be fluent with whole numbers, fractions, geometry, and measurement. On the basis of this recommendation elementary teachers must be able to provide the conceptual and procedural knowledge for students to develop these skills. (Georges, 2010)

Research continued...

- ★ Yet despite widespread recognition that teachers need to learn more in order for students to learn more, there is little consensus about what it is teachers should be learning. (Lewis, 2015)
- ★ One must conclude that, given all the efforts to reform the delivery of mathematics content along with maintaining the status quo traditional model of elementary school instruction for so many years, the generalist approach is clearly not working. (Gerretson, 2008)

Research cont...

- ★ Subject matter knowledge is essential in teaching. (Lee, 2010)
- ★ Being an effective mathematics teacher requires mathematics content knowledge as well as an understanding of the instruction processes needed to efficiently transfer this knowledge to students.(Lee, 2010)
- ★ In depth mathematical training is significantly associated with high quality of teaching in mathematics. (Lee, 2010)
- ★ It is evident that professional development and training are important to improve teaching of mathematics. (Lee, 2010)

Plan for Improving Elementary Math Instruction

- ★ Develop a Mathematics Endorsement modeled after the Reading Endorsement
- ★ Develop a badging system for instructors in the middle grades domains
- ★ Develop scheduling to allow dedicated mathematics teachers/content specialists at each grade level

Elementary Mathematics Endorsement

- ★ Foundations of Math Instruction (60 hours)
- ★ Application of Research-Based Instructional Practices (60 hours)
- ★ Foundations of Assessment (60 hours)
- ★ Foundations and Applications of Differentiated Instruction (60 hours)
- ★ Demonstration of Accomplishment (60 hours)

Badging System for Elementary Teachers

- ★ Focus on the National Council of Teachers of Mathematics and Florida Standards Domains
- ★ Teachers earn badges in middle grades domains
- ★ Domains would include:
 - Number Sense
 - Operations
 - Algebraic Thinking
 - Measurement
 - Data
 - Geometry
 - Fractions
 - Decimals
 - Problem Solving

Dedicated Math Teachers

- ★ Math teachers selected based on proficiency teaching math and content knowledge
- ★ Teachers earn Math Endorsement
- ★ Teachers become grade level Math Teachers
- ★ Teachers only teach math and remediation of students
- ★ Math teachers collaborate across grade levels to ensure quality of instruction, delivery strategies, and standards coverage

Next steps...

- ★ Bring together a group of highly experienced, successful math teachers, math coaches, and higher education faculty to develop the Math Endorsement Program
- ★ Create pathways (Train-the-Trainer through statewide training opportunities) for current elementary teachers to earn the Math Endorsement
- ★ Educate stakeholders (superintendents, principals, higher ed faculty) on the expected goals/outcomes of the Math Endorsement
- ★ Educate Colleges of Education on Math Endorsement as an add on to Elementary Teaching Certificate

Next steps, cont...

- ★ Develop criteria for each domain of the NCTM/Florida Standards middle grades math
- ★ Develop requirements for Badging in each domain
- ★ Educate stakeholders on the purpose and intent of the badging system
- ★ Create access points for teachers to earn badges through online platform, inservice programs, etc.

Next steps, cont...

- ★ Suggest districts switch to dedicated math teachers at each grade level
- ★ Provide funding to support additional teaching units as may be needed
- ★ Select experienced, successful teachers to be leaders in the initiative
- ★ Educate stakeholders in rationale for changes
- ★ Provide support groups through online or inservice opportunities for teachers to have access to resources to promote lesson development and sharing across districts and the state

Projected Benefits to Students

- ★ Increased and focused professional development will improve teachers' classroom strategies and instructional methods
- ★ Teachers focused on one subject will be able to gain more depth of content understanding
- ★ Less teachers teaching the subject will improve consistency across grade levels ensuring more student success
- ★ Increased availability of online resources for easy teacher access 24 hours a day to enable access to content review and standards explanations and/or examples

Projected Benefits, cont...

- ★ Remediation provided by content experts with additional strategies for working with struggling students
- ★ All elementary teachers will have “less on their plate”
- ★ Teachers will be able to work across grade levels to ensure content/standards coverage
- ★ Newly certified elementary teachers will be able to choose between Math Endorsement or Reading Endorsement based on their comfort level ensuring that teachers who choose math actually enjoy the subject
- ★ Stronger students heading to middle school and high school

Questions

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