

Critical Issues in Mathematics Education 2014

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I'm a Math Teacher?

- Speech Pathology Major turned Math teacher
 - 10 years teaching
 - 2 years coaching/providing PD
 - 1.5 years curriculum writer
- No credential and no math certification at the time I was hired

I'm Becoming a Good Math Teacher?

- Credential Program Offerings
 - Diverse children, i.e., differentiation
 - ELL strategies offering “comprehensible input”
 - General methods about how to use cooperative groups, motivation and incentives, formal and informal assessments
- Credential Program Lacked
 - An in depth study of the math that I was going to teach
 - Cross grade level study of standards

I'm Becoming a Prepared Math Teacher.

- Content Based Professional Development
 - 3 week INTENSE Math Institute
 - Definitions, definitions, definitions
 - What is a fraction?
 - What is congruence?
 - What is similarity?
 - Explanation of the whys
 - Why is a negative times a negative positive?
 - Why do we invert and multiply?

I'm Becoming a Prepared Math Teacher.

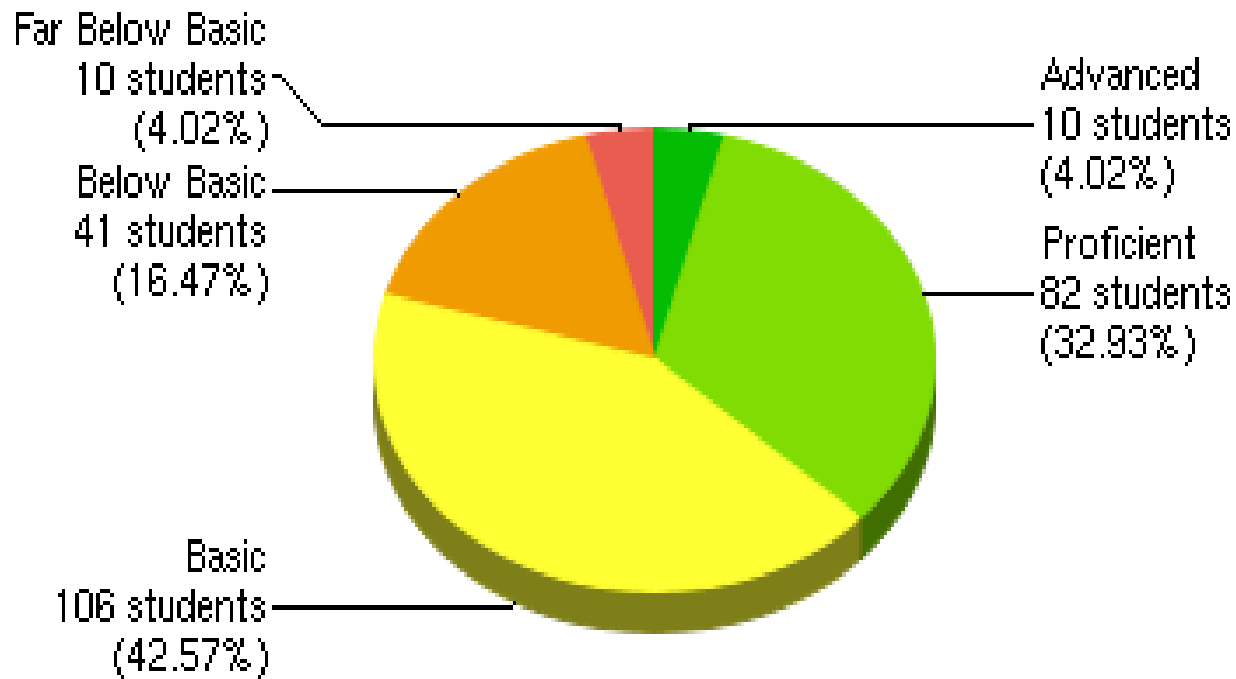
- More critical look at textbooks
 - Identifying errors
 - Noticing sequence issues
- More critical look at self
 - Did I explain that well?
 - Does this make sense?
 - It is mathematically correct?
 - Will it aide understanding of topics when these students move on to the next grade level?

I am a Prepared Math Teacher.

- An informal, 5 Year Look at the Impact of Teacher Content Knowledge on Student Performance
- Grade 7 students
 - Low socioeconomic status
 - Many ELLs
 - High performing students not included (pulled into Algebra I course)
 - The students entering Grade 7 were homogeneous on average throughout the 5 year period.

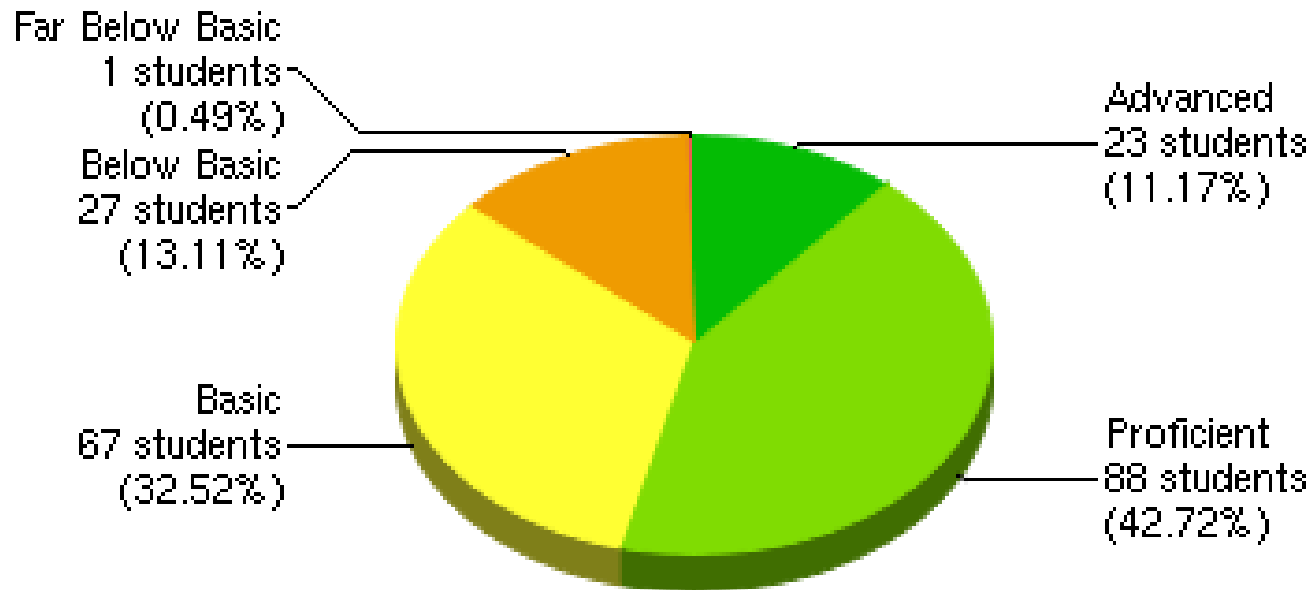
2009-2010

CST Band Distribution



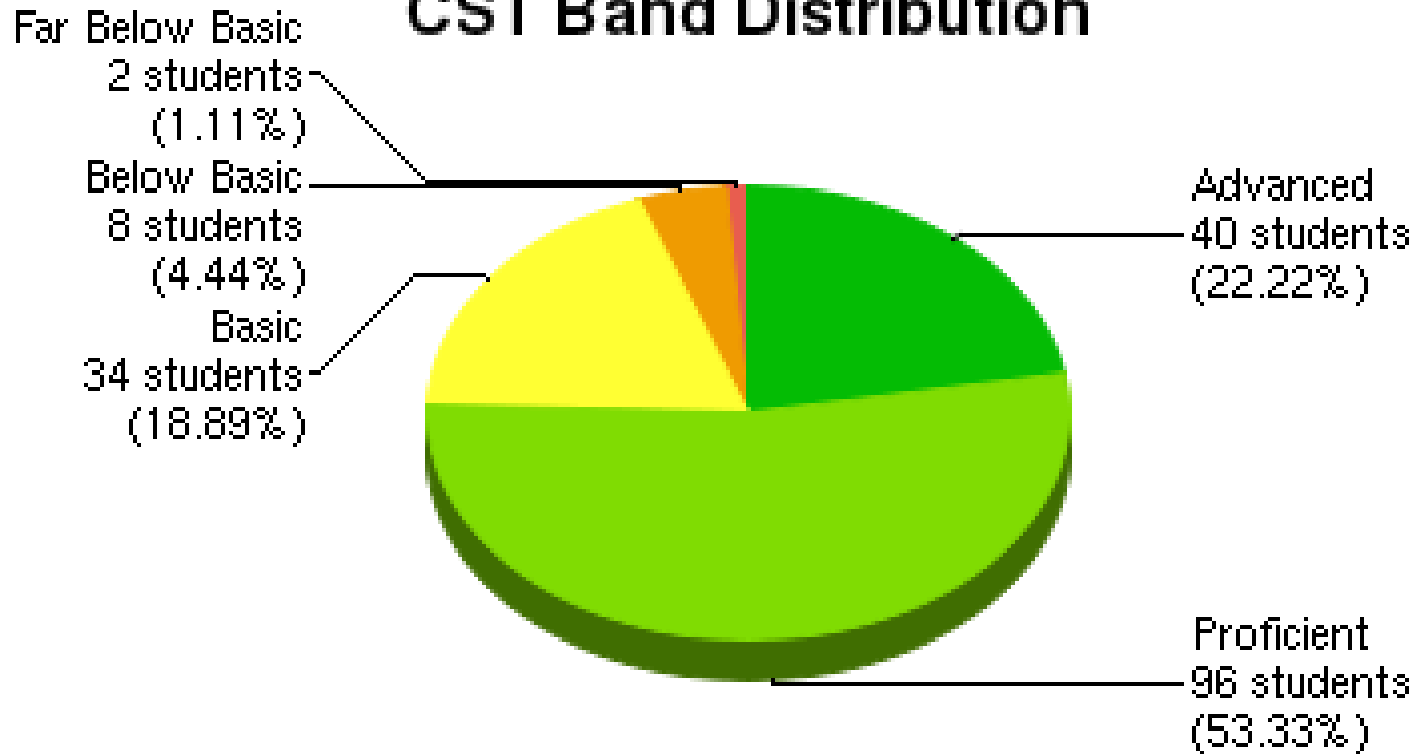
2010-2011

CST Band Distribution



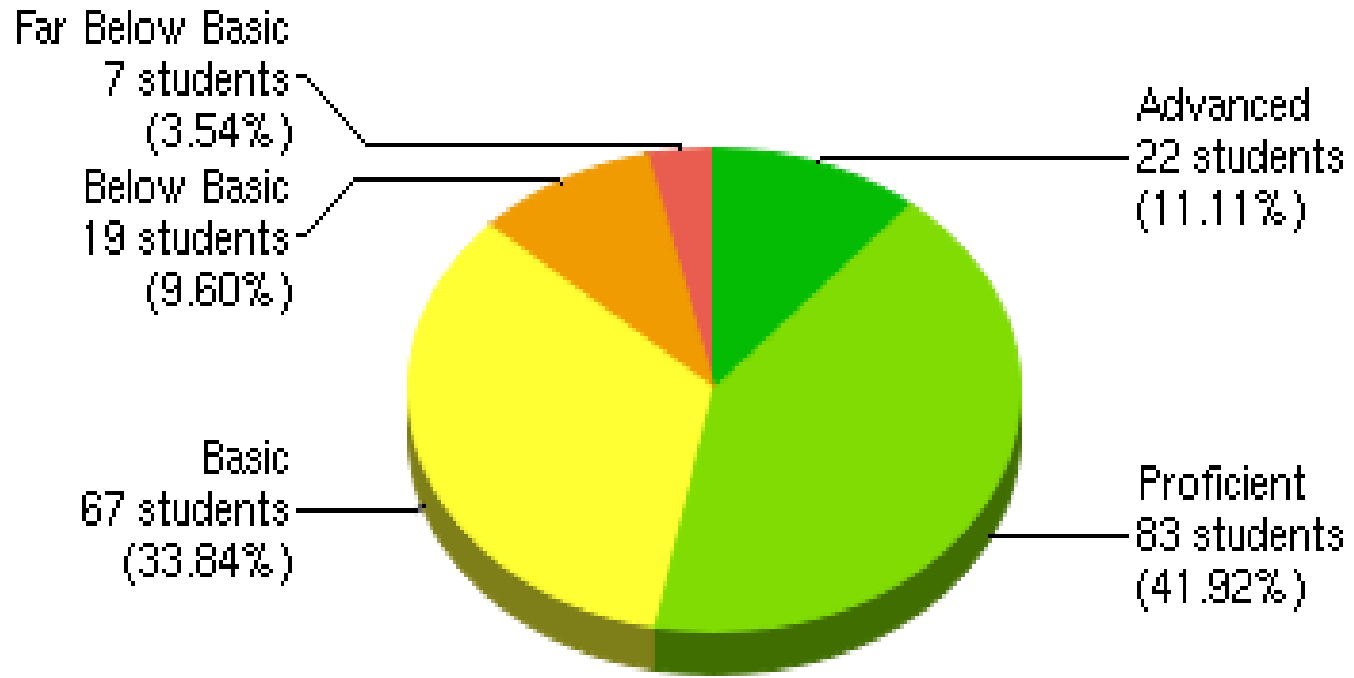
2011-2012

CST Band Distribution



2012-2013

CST Band Distribution



- What made the difference?
 - Attendance over several years at PD led by Dr. H. H. Wu where the focus of the PD was content knowledge specific to the content taught in middle school, NOT pedagogy.
 - A strong desire to do better resulting in lessons I wrote based on what I learned from Wu.

How can you help produce well prepared math teachers?

- Provide content based PD
 - Content of PD must be content that teachers teach, not higher level mathematics.
- Help teachers identify and fill the gaps that they have through challenging work.

Thanks!

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