



External Evaluation Report

Preliminary Descriptive Analyses:
CMSI Intensive Support School First Wave Teachers Survey, Summer 2003

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The conclusions drawn in this report reflect the viewpoint of the authors. While there are many potential viewpoints with respect to a given program, one way to facilitate improvement is through open discussions of such differing opinions within the context of data-based reporting.

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CMSI Intensive Support School First Wave Teachers Survey, Summer 2003**

A data brief

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Abstract

In this data brief, we highlight descriptive characteristics and perspectives of 315 teachers who are First Wave teachers at CMSI Intensive Support Math and Science Schools. Data comes from surveys completed during summer 2003. The findings cover teachers' descriptive characteristics, professional practices, classroom practices, and perspectives on CMSI-supported curricula.

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The data contained in this brief were taken from the results of a survey completed by participants in a series of professional development workshops for CMSI Intensive Support School First Wave teachers during the period of 8/11-8/21, 2003. Of the 898 participants in these workshops, 474 or 53% consented to take part in this research and completed surveys. Of those participating, 66% were First Wave teachers from CMSI Intensive Support Schools, 2% were math Specialists and less than 1% were science Specialists. The remainder indicated that they were either some other type of CPS teacher or did not answer.

This data brief focuses on the self-reported views of the 315 survey respondents who identified themselves as CMSI Intensive Support School First Wave teachers. In this brief we highlight the following topics related to these First Wave teachers:

- Descriptive characteristics
- Professional practices
- Classroom practices
- Perspectives on CMSI-supported curricula

Descriptive characteristics

Demographics

Caucasian non-Hispanic teachers (41%) and African-American teachers (27%) represented a critical percentage of the First Wave teachers. 17% of participants were Hispanic-Americans, and 9% of participants did not answer. The remaining 6% was composed of Asian-Americans, Native Americans, Biracial Americans, and others.

73% of CMSI Intensive Support School teachers were female, and 10% were male. For the age distribution, see Table 1.

Table 1: Age of CMSI Intensive Support School First Wave Teachers

Age bracket	% of CMSI Intensive Support School First Wave Teachers
Under 25	9%
25-29	19%
30-39	26%
40-49	17%
50-59	18%
60 or more years old	4%
Did not answer	7%

Teaching experience

The distribution of the grades taught is concentrated on grade 1-5. See Table 2. Comparatively fewer teachers were in higher-level and pre-school grades. 18% reported

teaching bilingual classes, and about 17% reported teaching special education classes. 41% Intensive educators' classrooms were self-contained non-lab rooms.

Table 2: Grades taught by CMSI Intensive Support School First Wave Teachers

Grade	% of CMSI Intensive instructors who teach
Pre-K	6%
Kindergarten	18%
1	24%
2	24%
3	28%
4	23%
5	22%
6	17%
7	14%
8	14%

The number of years taught at current school ranged from 1 to 37 years. 30% of participants had taught for 2 years or less, while 81% were in the range of less than fifteen years. For the length of time in CPS, most teachers indicated that they had stayed in the system for 10 years or less. The highest three percentages are for 1 year (10%), 2 years (9%), and 3 years (9%). The similar pattern as that of CPS can also be found in the length of time teaching math and science, i.e. most teachers had taught math or science for 10 years or less. However, the highest three percentages for math instruction are 1 year (8%), 3 years (7%) and 10 years (7%); and those for science are also 1 year (10%), 3 years (8%) and 10 years (7%).

Education

For 48% of Intensive Support School teachers, a bachelor's degree was their highest level of education reported. 23% held a master's degree, and 29% held credit above a master's degree. Educators held various degrees of college credits in math and science (see Table 3 below). The most frequent response for both subjects was 5-10 credit hours.

Table 3: College Credits earned by of CMSI Intensive Support School First Wave Teachers

Number of College Credits	Math	Science
0	3.8%	5.7%
1-4	6.7%	10.2%
5-10	24.1%	26.3%
11-15	19.7%	20.3%
16-21	18.4%	13.3%
22+	12.4%	7.0%
Bachelor's degree in subject	1.9%	3.2%
Graduate degree in subject	0.6%	0.6%
Did not answer	12.4%	13.4%

83% of Intensive educators reported a certification in elementary school, the highest percentage among all kinds of certifications (44% for middle school, 25% for early childhood and 15% for secondary school). Of these, approximately 53% of elementary-

certified educators held other certifications as well. 99% of Intensive educators reported that they were Illinois Board certified, and about 8% indicated that they were National Board certified.

The majority (58%) of CMSI Intensive educators who participated in the professional development workshop did not have any endorsements in math or science areas. 19% of educators reported being endorsed to teach mathematics, while 14% reported being endorsed to teach science. 6% reported an endorsement in both mathematics and science.

Professional practices

Common preparation times at their school

The majority of educators (76%) reported that their school held some sort of common preparation time for teachers. 70% of Intensive educators with common prep times reported common prep times organized by grade level. 8% reported prep times organized by subject area, 1% by study groups, and another 8% at other levels. A few teachers reported prep times at several levels, for example, 7% teachers had prep times organized by both grade and subject level, and 0.6% teachers had prep times organized by both grade and study group. The data clearly identified grade level as the primary means of organizing common preparation times for this group.

The level to which common preparation times were used for teacher collaboration slightly varied. About 29% of Intensive educators with common preparation times reported that these times were all or mostly used for collaboration. 29% reported that they were frequently used for collaboration. 21% and 14% of the Intensive educators reported that collaboration occurred only sometimes or rarely in common preparation times.

Professional development attended

The most frequently chosen response as to the level of math professional development attended in the last year was 5-10 hours. 23% of teachers had 5-10 hours in math professional development in the past 12 months, and 22% of CMSI Intensive teachers have had no math professional development and 21% of CMSI instructors have had less than 5 math professional development hours in the past year. The most frequently chosen response as to the level of science professional development attended in the last year was zero hours. 43% have had no science professional development in the past 12 months, and 25% have had less than 5 science professional development hours and 12% of teachers had 5-10 hours in science professional development. The most frequent response for professional development in the past 3 years was less than 10 hours for both math (35%) and science (58%). 23% of teachers have had 11-25 hours in math PD, and 18% in science PD. The response for all other choices is less than 10%. However, there were some interesting figures: 4% reported that they had more than 120 hours in math, and 3% in science, which was against the descending order.

33% of CMSI Intensive Teachers plan to continue professional development offered by their school or by the Chicago Public Schools district. 36% plan to pursue an advanced degree in a specific content area. 15% are unsure of their professional development plans, and 12% plan to pursue an administrative certificate.

Professional development needs

Reported needs in various areas of professional development did not vary notably. The 4-point scale (0-3) scale ranged from “None needed (0)” to “Substantial need (3).” All needs were rated between “Minor needed (1)” to “Moderate needed (2)” (closer to the “Moderate needed” level), with means from 1.7-2.1 (standard deviations all around .8). “Moderate need” was also the modal response for every item (for item “Learning how to use technology in mathematics or science instruction”, the difference between the number of teachers choosing moderate need and that choosing substantial need is only 12). See below for all professional development need items listed in descending order by mean.

Table 4: Professional development needs reported by CMSI Intensive Support School First Wave Teachers

	Mean	Mode	Standard Deviation
Learning how to use technology in mathematics or science instruction	2.1	2	.8
Learning how to teach math or science in a class that includes students with special needs	2.0	2	.8
Learning how to use inquiry/investigation-oriented teaching strategies	1.9	2	.8
Learning how to assess student learning in math or science	1.9	2	.8
Deepening my own math or science content knowledge	1.7	2	.8
Understanding student thinking in mathematics or science	1.7	2	.8

Classroom practices

Classroom teaching

A series of detailed questions assessed the frequencies of various teaching practices and the influences on teaching practices. These questions provided a more in-depth look at the principles guiding classroom instruction. CMSI Intensive teachers reported the percentage of lessons that applied to each of the various items, such as “The lessons required students to build models or charts.” Categories included none, 1-10%, 11-25%, 25-50%, 51-75% and 76-100%. Most instructors tended to answer in the middle categories (3=(25-50%) or 4=(51-75%)) for most items. See Table 5 below for descriptive data for all teaching practices.

Table 5: Teaching practices of CMSI Intensive Support School First Wave Teachers, in descending order by mean

	Mean	Median	Mode	Standard Deviation
The lessons included activities added to supplement the publisher’s curriculum as dictated by the teacher’s edition of the text.	3.4	4	4	1.4
The lessons required students to work with materials such as counting blocks, geometric shapes or algebraic tiles to understand concepts.	3.3	4	4	1.4
The lessons were focused on studying a topic in depth, rather than covering basic facts, concepts, or procedures.	3.3	3	4	1.3
The lessons followed the publisher’s curriculum as dictated by the teacher’s edition of the text.	3.1	3	3 & 5	1.5
The lessons required you to review content or skills you expected students to have learned in previous grade levels.	3.1	3	4	1.5
The lessons required students to organize, interpret, evaluate, and use information to produce a piece of original work.	3.1	3	4	1.3
The lessons required students to measure objects using tools such as ruler, scales, protractors, balances, graduated cylinders, or beakers.	3.0	3	3	1.3
The lessons required students to collect data by counting, observing, or conducting surveys.	3.0	3	2	1.4
The lessons required students to present information to other students concerning a mathematical or scientific idea or project.	2.7	3	4	1.4
The lessons required students to build models or charts.	2.7	3	2	1.3

Student practices

Participants were also asked to rate the frequency in which their students engaged in various practices, from “Read from a textbook in class” to “Design or implement their own investigation.” Frequencies ranged from Never (0) to Daily (4). Answers are given below by modal response. All descriptive data for each item is indicated in Table 6.

<p>Daily practices (Mode=4)</p> <ol style="list-style-type: none"> 1. Do homework 2. Work in groups 3. Answer textbook/worksheet questions 4. Read other materials in class 5. Explain reasoning when giving an answer 6. Read from a textbook in class 7. Practice routine computations/algorithms 8. Watch a demonstration
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Once/Twice a week practices (Mode=3)

- 9. Use manipulatives
- 10. Record, represent, and/or analyze data
- 11. Explain concepts to one another
- 12. Supply evidence to support claims
- 13. Use multiple representations
- 14. Use computers as a tool
- 15. Write reflections in notebook or journal

Once/Twice a month practices (Mode=2)

- 16. Listen and take notes on teacher's presentation
- 17. Design or implement their own investigation
- 18. Conduct an experiment or investigation
- 19. Make presentations in front of the class
- 20. Use calculators as a tool

Never (Mode=0)

- 21. Prepare written reports

Table 6: Student practices reported by CMSI Intensive Support School First Wave Teachers, in descending order by mean

	Mean	Median	Mode	Standard Deviation
Do homework	3.6	4	4	.8
Work in groups	3.4	4	4	.8
Answer textbook/worksheet questions	3.1	3	4	1.1
Explain their reasoning when giving an answer	3.1	3	4	1.1
Watch a demonstration	3.0	3	4	1.0
Use manipulatives	3.0	3	3	.9
Practice routine computations/algorithms	3.0	3	4	1.3
Read other materials in class	2.9	3	4	1.3
Explain concepts to one another	2.8	3	3	1.1
Read from a textbook in class	2.7	3	4	1.5
Supply evidence to support their claims	2.6	3	3	1.1
Record, represent, and/or analyze data	2.6	3	3	1.0
Write reflections in a notebook or journal	2.4	3	3	1.4
Use multiple representations	2.4	3	3	1.2
Use computers as a tool	2.1	2	3	1.4
Listen and take notes on teacher's presentation	2.0	2	2	1.6
Conduct an experiment or investigation	2.0	2	2	1.1
Make presentations in front of the class	1.8	2	2	1.1
Design or implement their own investigation	1.8	2	2	1.1
Use calculators as a tool	1.7	2	2	1.3
Prepare written reports	1.4	1	0	1.2

Course emphasis and time spent

CMSI Intensive teachers showed a high degree of agreement in terms of what student objectives **math instruction** should emphasize. Most of the objectives listed received a rating of heavy emphasis. Some math objectives did show less agreement. For example, 52% of instructors reported that math algorithms should receive heavy instructional emphasis, while 38% reported that this should receive moderate emphasis. Future math study also showed less agreement, with 48% reporting heavy emphasis and 38% reporting moderate emphasis. There was also less agreement for the level of emphasis on standardized math test preparation. 36% reported heavy emphasis, with 42% reporting a moderate level and 16% reporting a minimal level of emphasis. See Table 7 for all math objectives.

Instructors were in slightly less agreement as to the areas of emphasis for **science instruction**, although areas of lowest agreement mirrored those above for math, i.e. science algorithms, preparation for future study in science and emphasis on standardized tests. Table 8 lists a breakdown of science objectives.

Table 7: Level of emphasis elementary teachers should place on student math objectives (figures are rounded to the nearest whole number) reported by CMSI Intensive Support School First Wave Teachers

	Heavy Emphasis	Moderate Emphasis	Minimal Emphasis	No emphasis	Did not answer
Increase students' interest in math	73%	23%	0%	0%	5%
Learn math concepts	80%	15%	0%	<1%	5%
Learn math algorithms and procedures	52%	38%	4%	<1%	6%
Learn how to solve problems	85%	10%	1%	0%	5%
Learn how to reason mathematically	77%	17%	2%	<1%	5%
Learn how math ideas connect with one another	72%	22%	1%	<1%	5%
Prepare for future study in math	48%	38%	9%	0%	6%
Prepare for standardized tests	36%	42%	16%	3%	5s%

Table 8: Level of emphasis elementary teachers should place on student science objectives (figures are rounded to the nearest whole number) reported by CMSI Intensive Support School First Wave Teachers

	Heavy Emphasis	Moderate Emphasis	Minimal Emphasis	No emphasis	Did not answer
Increase student's interest in science	72%	20%	1%	0%	6%
Learn science concepts	68%	24%	2%	0%	6%
Learn science algorithms/procedures	44%	40%	9%	<1%	7%
Learn how to solve problems	72%	20%	1%	<1%	6%
Learn how to reason scientifically	69%	22%	2%	<1%	7%
Learn how science ideas connect with each other	68%	24%	1%	<1%	7%
Prepare for further study in class	44%	39%	10%	1%	7%
Prepare for standardized tests	28%	41%	20%	5%	6%

The current analyses also examined the number of minutes reportedly spent teaching math and science. The number of minutes spent teaching math each day was reported as varying from 15 to 600 minutes (teachers responding with the number over 150 minutes were most likely to have misunderstood the question as the time spent each week), with a mean of 103, a median of 60, and a mode of 60 (See Chart 1). The number of minutes spent teaching science each week was reported as varying from 10 to 640 minutes (only 1 teacher gave the answer 640, which was really uncommon, and the responses under 60 minutes were also problematic), with a mean of 103 minutes, a median of 90 minutes and a mode of 120 minutes (See Chart 2). Given the responses to these questions the validity of these findings is questionable.

Chart 1 Minutes of math taught each day

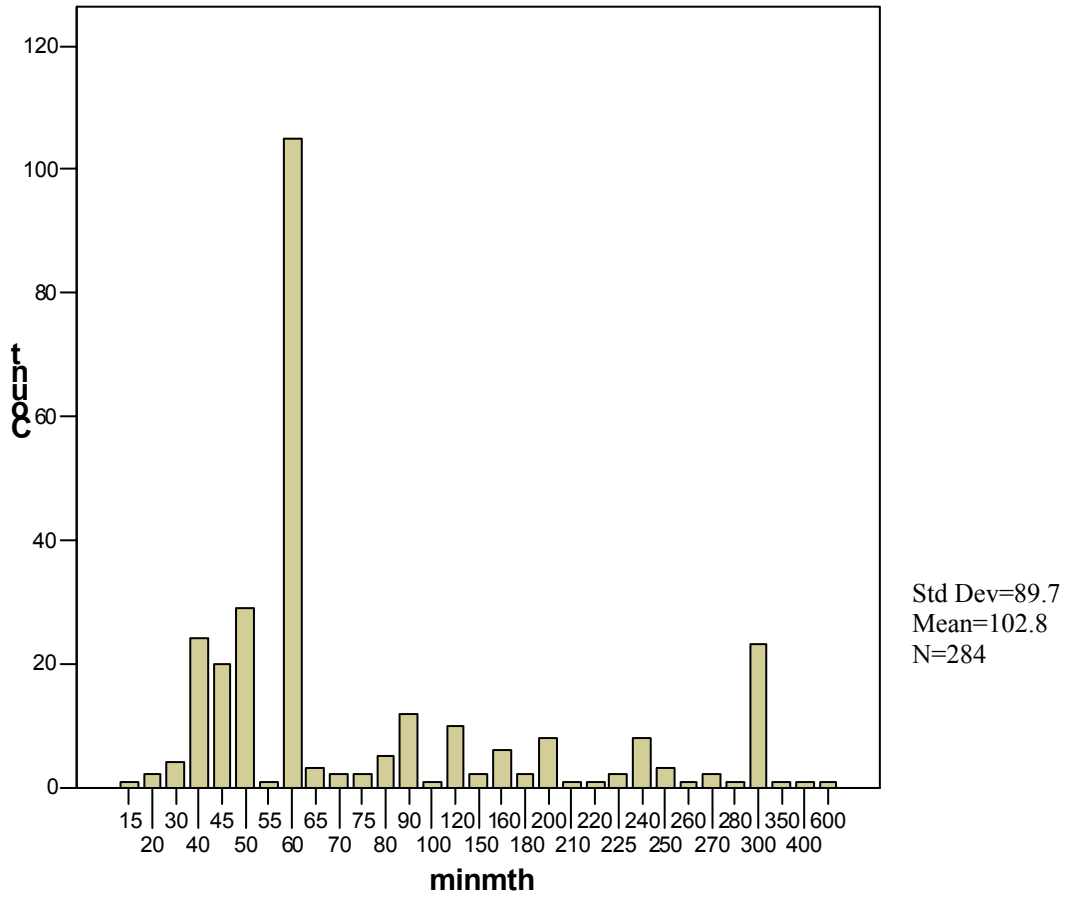
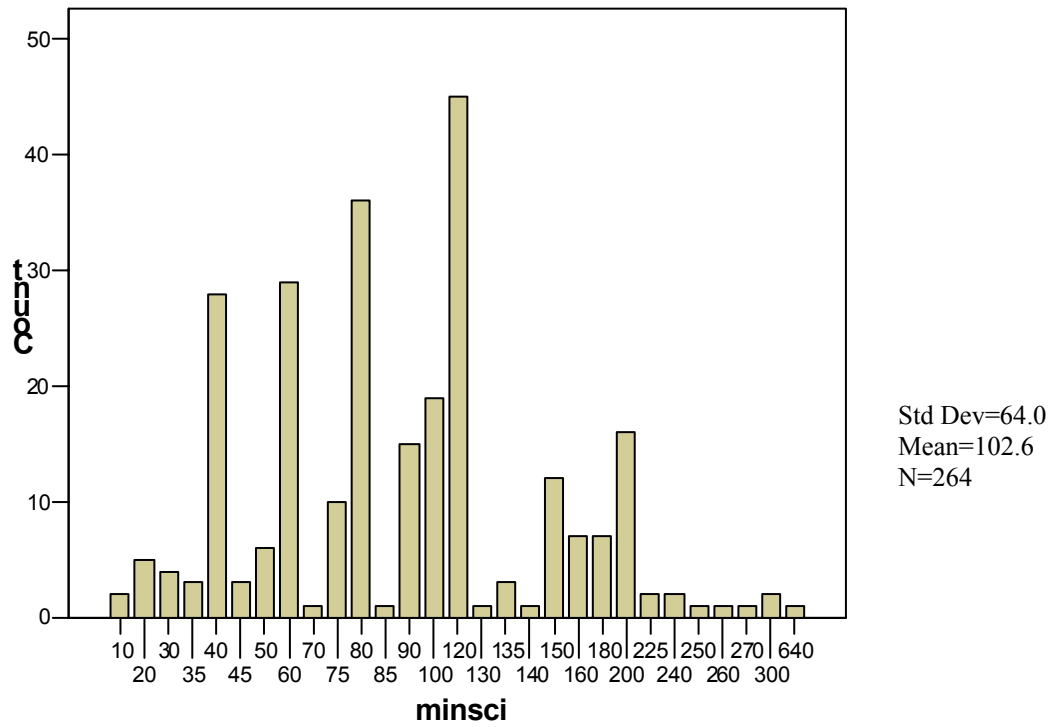


Chart 2 Minutes of science taught each week



Perspectives on CMSI-supported curricula**Expectations and interests for CMSI**

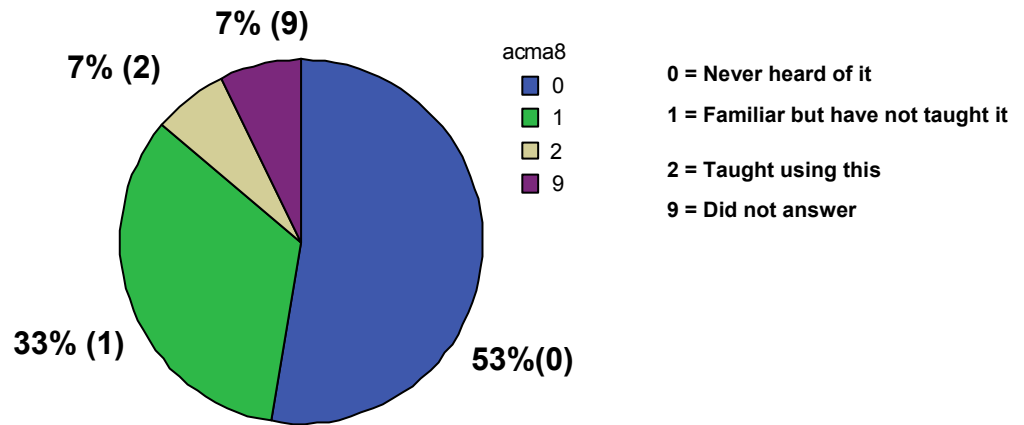
Teachers indicated their various reasons for being a First Wave teacher in CMSI. The following table gives, in descending order, the percentage of the reported Intensive teachers who chose each item (Item “Other” is not listed because 188 participants didn’t answer the question, which makes the percentage unacceptably high). The most frequently chosen items are to learn new strategies for teaching math/science, get training in new curricular materials and use new curricular materials.

Table 9: Expectations and Interests

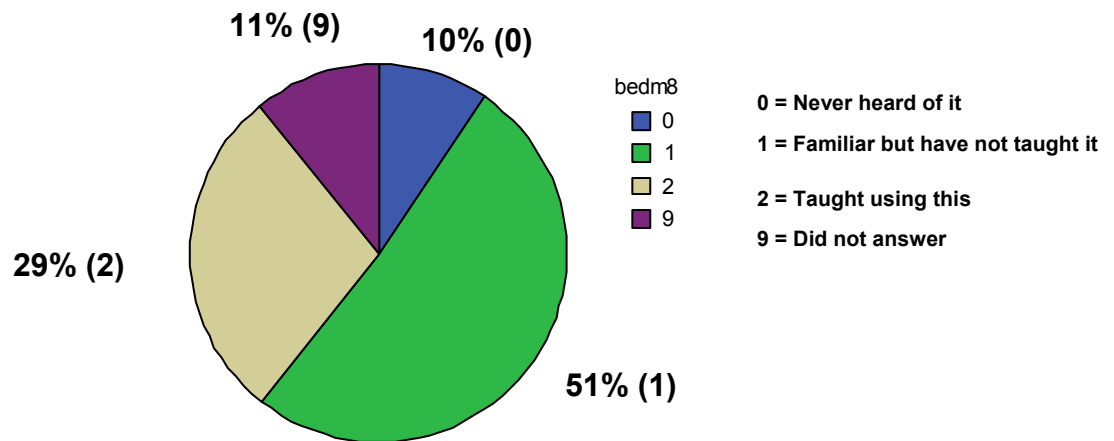
Reasons	% of CMSI Intensive Teachers who chose the item
Learn new strategies for teaching math/science	97%
Get training in new curricular materials	97%
Use new curricular materials	95%
Learn more math/science content	86%
Be part of something school-wide	81%
Take on a new challenge	78%
My principal asked me to do so	70%
Take another step along my career path	69%
Do something different	64%
Be part of something district-wide	63%
Use my skills to reach more children outside my classroom	61%
Take on a leadership role	54%
Work toward a certification or endorsement	36%
Work with adults	33%
Avoid burnout in my previous situation	23%
Get out of the classroom	5%

Perspectives on CMSI math and science curricula

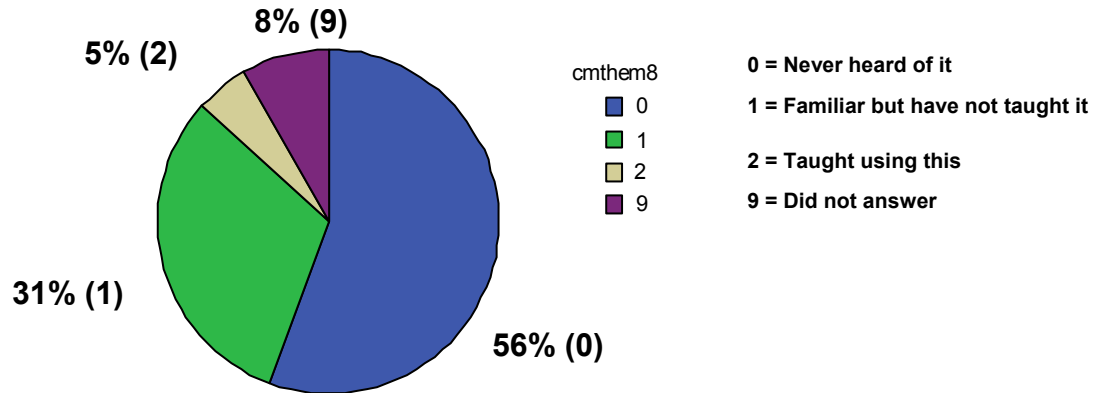
Connected Math



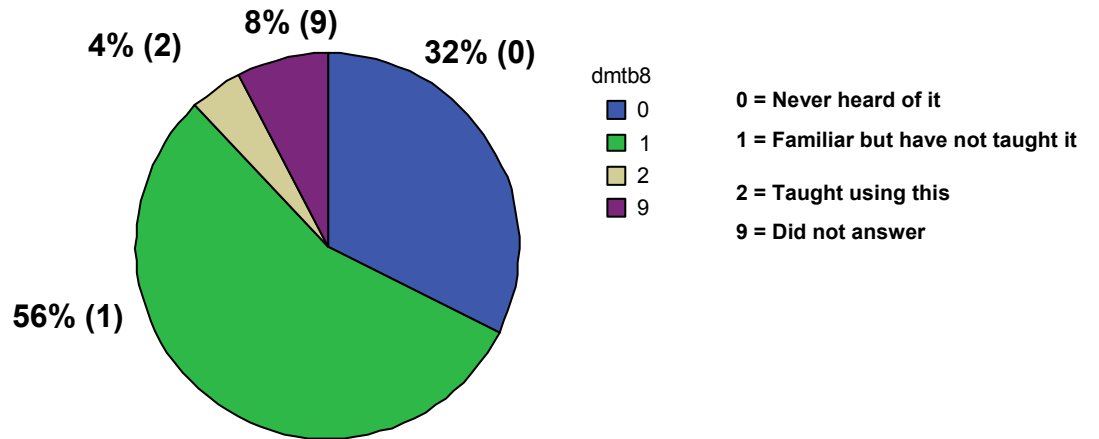
Everyday Math



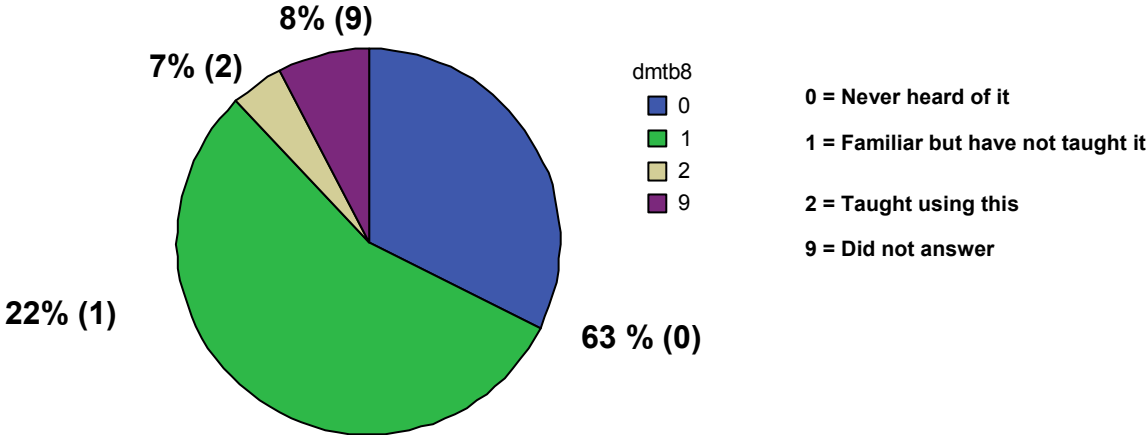
Math Thematics



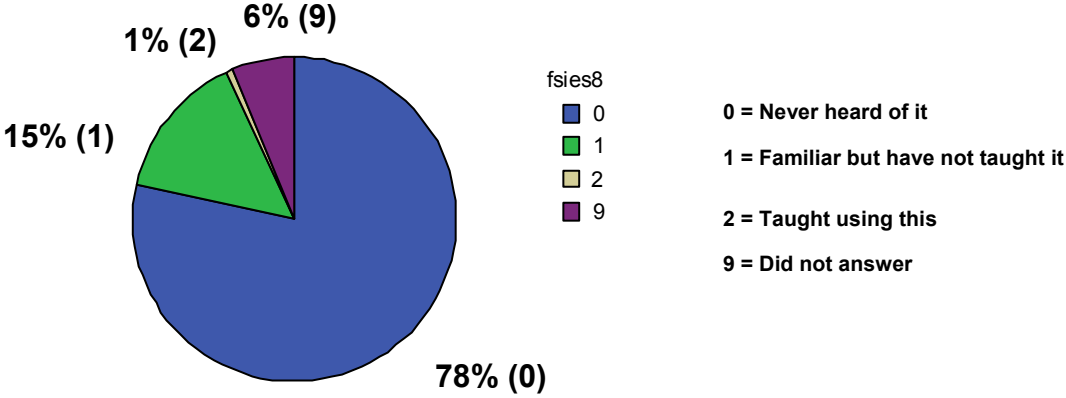
Math Trailblazers



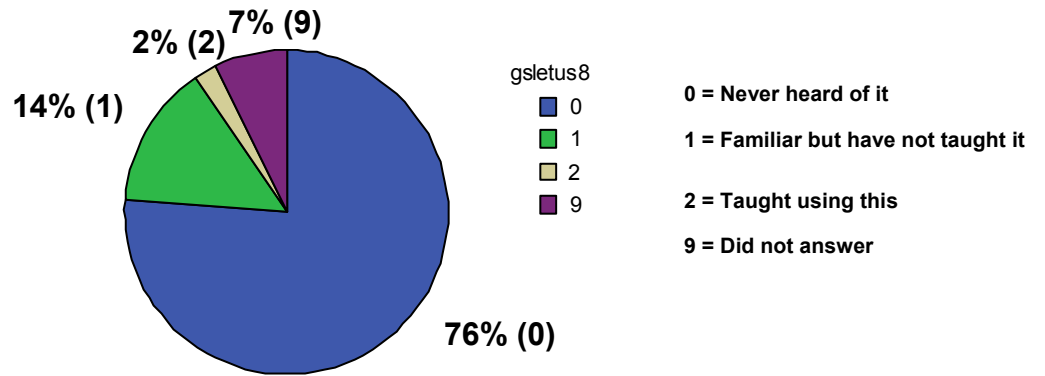
FOSS



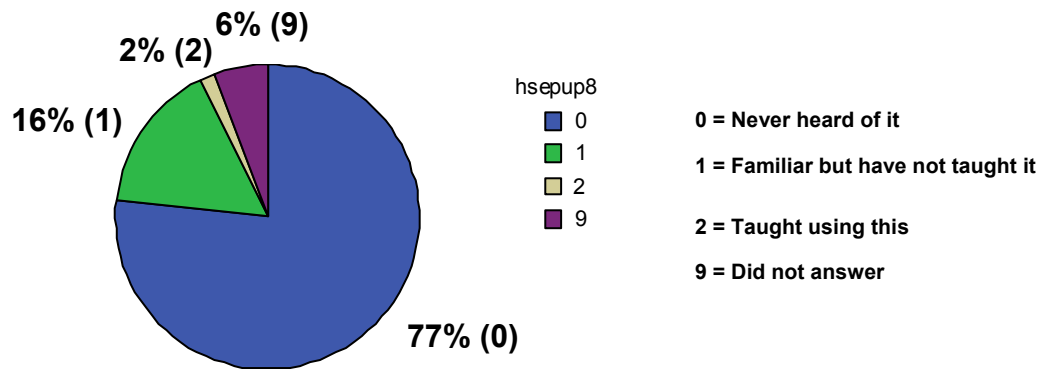
IES



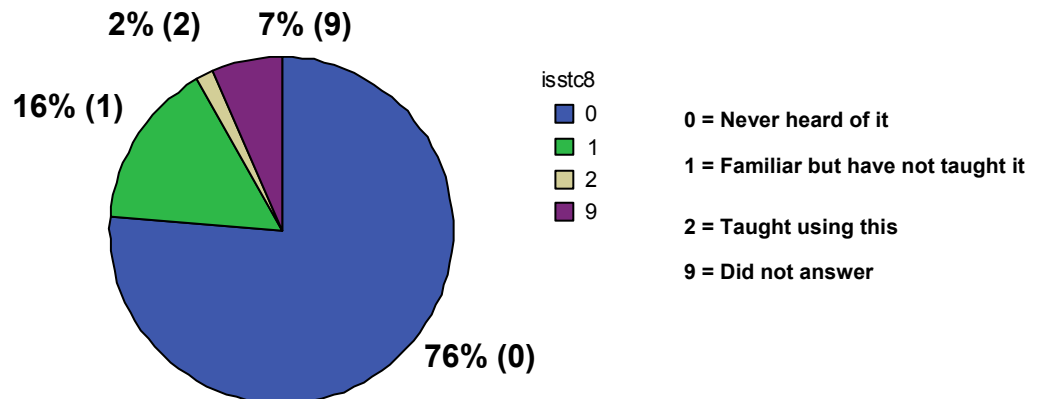
LETUS



SEPUP



STC



CMSI Intensive teachers were most familiar with Everyday Math based on a choice of several curricula. 29% of instructors had taught using Everyday Math, while 51% were familiar with the curriculum but had not taught it. Only 10% had never heard of Everyday Math. In contrast, 32%, 53% and 56% of instructors had never heard of Math Trailblazers, Connected Math and Math Thematics respectively. Only 4-7% of instructors had actually taught using one of these three curricula.

In general, instructors were much more familiar with math curricula than science curricula. FOSS was the most familiar science curriculum, with 7% of teachers having taught using FOSS. 63% of teachers, however, had never heard of this curriculum. Familiarity with LETUS, IES, SEPUP, and STC curricula was apparently much lower. Only about 1%-2% of teachers had actually taught using any one of these four curricula, and 76-78% had never heard of them.

Curricula standardization

CMSI Intensive instructors were surveyed to determine the level of standardization that they feel is appropriate for their grade level. 54% of total responses endorsed standardization at the national level. A total of 72% endorsed standardization up to the state level. 78% endorsed standardization up to the district level, and 88% also endorsed standardization up to the school level. 21% reported that curricula should *not* be standardized but selected by individual teachers.

The most popular response was that curricula should be standardized at school, district, and state levels. 52% of teachers felt that curricula should be standardized at the state, district, and school level.