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ABSTRACT

The Comprehensive School Mathematics Program (CSMP) is a program of CEMREL, Inc., one of the national educational laboratories, and was funded by the National Institute of Education (NIE). Its major purpose is the development of curriculum materials for kindergarten through grade 6. This document describes non-test data collected from classes tested in spring 1982. Information regarding program implementation, teacher experiences and training, and teacher attitudes is presented. Questions on surveys were responded to and returned by 22 CSMP teachers and 26 non-CSMP teachers. It was found that both groups supplemented instruction, but with differences in what was supplemented. More CSMP instructors included basic operations or computation exercises, using whole numbers, fractions, decimals, geometry, metrics, and percent. Non-CSMP teachers supplemented over a broader array of topics, including "enrichment" material. Analysis also indicated that CSMP teachers tended to follow lesson plans in great detail, view the lessons as challenging for most pupils, view mathematics class as having a more enjoyable atmosphere, view instruction as creative activity-oriented, and regard mathematics as one of the easier subjects to teach. (MP)

Extended Pilot Trial of the Comprehensive School Mathematics Program

Evaluation Report 9-C-1

Sixth Grade Evaluation: Teacher Questionaires

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Math Research and Evaluation Studies

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Description of Evaluation Report Series

The Comprehensive School Mathematics Program (CSMP) is a program of CEMREL, Inc., one of the national educational laboratories, and is funded by the National Institute of Education. Its major purpose is the development of curriculum materials for grades K-6.

Beginning in September, 1973, CSMP began an extended pilot trial of its Elementary Program. The pilot trial is longitudinal in nature; students who began using CSMP materials in kindergarten or first grade in 1973-74, were able to use them in first and second grades respectively in 1974-75, and so on in subsequent years. Hence the adjective "extended".

The evaluation of the program in this extended pilot trial is intended to be reasonably comprehensive and to supply information desired by a wide variety of audiences. For that reason the reports in this series are reasonably non-technical and do not attempt to widely explore some of the related issues. The list of reports for previous years is given on the next page.

The Sixth Grade Reports are:

9-A-1 Summary of Student Achievement, Draft Report

9-A-2 Summary of Implementation Data Draft Report

9-B-1 Sixth Grade MANS Test Data

9-C-1 Sixth Grade Evaluation: Teacher Questionnaires

Extended Pilot Trials of the Comprehensive School Mathematics Program

Evaluation Report Series

Evaluation Report (1974)	1-A-1	Overview, Design and Instrumentation
	1-A-2	External Review of CSMP Materials
	1-A-3	Final Summary Report Year 1
	1-B-1	Mid-Year Test Data: CSMP First Grade Content
	1-B-2	End-of-Year Test Data: CSMP First Grade Content
	1-B-3	End-of-Year Test Data: Standard First Grade Content
	1-B-4	End-of-Year Test Data: CSMP Kindergarten Content
	1-B-5	Test Data on Some General Cognitive Skills
	1-B-6	Summary Test Data: Detroit Schools
	1-C-1	Teacher Training Report
	1-C-2	Observations of CSMP First Grade Classes
	1-C-3	Mid-Year Data from Teacher Questionnaires
	1-C-4	End-of-Year Data from Teacher Questionnaires
	1-C-5	Interviews with CSMP Kindergarten Teachers
	1-C-6	Analysis of Teacher Logs
Evaluation Report (1975)	2-A-1	Final Summary Report Year 2
	2-B-1	Second Grade Test Data
	2-B-2	Readministration of First Grade Test Items
	2-B-3	Student Interviews
	2-C-1	Teacher Questionnaire Data
	2-C-2	Teacher Interviews, Second Grade
	2-C-3	Teacher Interviews, First Grade
Evaluation Report (1976)	3-B-1	Second and Third Grade Test Data Year 3
	3-C-1	Teacher Questionnaire Data Year 3
Evaluation Report (1977)	4-A-1	Final Summary Report Year 4
	4-B-1	Standardized Test Data, Third Grade
	4-B-2	Mathematics Applied to Novel Situations (MANS) Test Data
	4-B-3	Individually Administered Problems, Third Grade
	4-C-1	Teacher Questionnaire Data, Third Grade
Evaluation Report (1978)	5-B-1	Fourth Grade MANS Test Data
	5-B-2	Individually Administered Problems, Fourth Grade
	5-C-1	Teacher Questionnaire and Interview Data, Fourth Grade
Evaluation Report (1979)	6-B-1	Comparative Test Data: Fourth Grade
	6-B-2	Preliminary Test Data: Fifth Grade
	6-C-1	Teacher Questionnaire Data: Grades 3-5
Evaluation Report (1980)	7-B-1	Fifth Grade Evaluation: Volume I, Summary
	7-B-2	Fifth Grade Evaluation: Volume II, Test Data
	7-B-3	Fifth Grade Evaluation: Volume III, Non-Test Data
	7-B-4	Re-evaluation of Second Grade, Revised MANS Tests
	7-B-5	Achievement of Former CSMP students at Fourth Grade
	7-B-6	Student Achievement, Rapid Implementation Model
Evaluation Report (1981)	8-B-1	Sixth Grade Evaluation, Preliminary Study
	8-B-2	Evaluation of Revised Second Grade, MANS Blue Level
	8-B-3	Evaluation of Revised Third Grade, MANS Green Level
	8-B-4	Three Evaluations of Gifted Student Use
	8-C-1	Preliminary Study of CSMP "Graduates"

Key to Indexing

Evaluation Reports are labelled m-X-n,
where "m" is the year of the pilot study, with 1973-74 as Year 1.
"X" is the type of data being reported where A is for overviews and summaries, B is for student outcomes and C is for other data.
"n" is the number within a given year and type of data.

TABLE OF CONTENTS

Evaluation Report 9-C-1

Sixth Grade Evaluation: Teacher Questionaires

INTRODUCTION

In the Spring of 1982, a series of mathematics tests was administered to 27 sixth grade classes using the Comprehensive School Mathematics Program and to 31 comparison classes using more traditional programs. The results of this testing are described in Evaluation Report 9-B-1.

This report describes non-test data collected from these classes including implementation data and teacher attitudes.

Setting. The 26 CSMP classes represented about half of the sixth grade CSMP classes that year. The remaining CSMP classes were not tested for one of several reasons: They did not begin CSMP until sixth grade, testing would have been too expensive because of remoteness or a single-class site, or only some classes in a district were tested to prevent over-representation of that district.

The 37 Non-CSMP classes came from two sources. First, in some districts, CSMP was being used at sixth grade in some, but not all, of the schools in the district; fifteen Non-CSMP classes were selected from such schools. Second, in other districts, CSMP was being used in all the schools of the district; in that case Non-CSMP classes were recruited from similar schools in other CSMP districts which had not yet reached sixth grade in their CSMP implementation. There were 22 such classes.

This combination of school level selection within district and use of CSMP schools in other districts reduces the likelihood of there being consistently better teachers in the CSMP classes compared to the Non-CSMP classes.

Table 1 on the following page shows the distribution of classes participating in the testing.

Table 1

Distribution of Participating Classes

Site Designation	Number of Classes CSMP	Non-CSMP	Type of Community	Approximate Socio-Economic Background of Classes Tested
1	0	6	Medium city	Upper middle/Middle
2	2	2	Exurban	Middle/Lower middle
3	1*	5	Inner suburb of large city	Middle
4	0	4	Suburb of medium city.	Middle/Lower middle
5	7*	0	Small city	Middle/Lower middle
6	8	6	Suburb of large city	Upper/Upper middle
7	0	6*	Large city	Upper middle/Lower middle
8	6	0	Suburb of small city	Upper middle
9	2	2	Large city	Upper middle/Lower middle
10	0	6*	Medium city	Upper middle
Total	26	37		

*Upper track classes: i.e. students specially grouped by ability.

Except for districts 3 and 5, all CSMP classes had studied CSMP since kindergarten or first grade. In those two district, however, the students began the program in third grade and fifth grade, respectively.

Based on scores from the vocabulary test, administered to all classes, the 37 Non-CSMP classes were slightly higher in ability than the 26 CSMP classes. In general, the students tended to be far above average in ability, with approximately half of them scoring above the 75th percentile on the vocabulary test for both CSMP and Non-CSMP.

IMPLEMENTATION

This section summarizes responses to questions about the implementation of the program and teachers' experience and training. Questionnaires were returned by 22 CSMP teachers, representing 27 CSMP classes and by 26 non-CSMP teachers, representing 31 comparison classes. Data reported are based on 22 and 26 teachers respectively, except in the odd case where teachers did not respond to an item or set of items and that is indicated in the tables.

In all instances, the first entry is the percent of CSMP teachers responding; the second entry is the responses of the comparison set of non-CSMP teachers.

1. Teacher Experience

	CSMP	Non-CSMP
First Year	0%	0%
2-5 Years	04%	08%
6-10 Years	23%	15%
More than 10 Years	73%	77%

At what grade levels have you taught math (and CSMP):

	Math Experience Generally		CSMP Experience in Particular
	CSMP	Non-CSMP	
Just Sixth Grade	23%	4%	55%
Sixth Grade Plus Lower Grades	55%	52%	27%
Sixth Grade Plus Higher Grades	4%	20%	
Sixth Grade Plus Lower & Higher Grades	18%	24%	
No Response			18%

Both group of teachers are quite experienced; about three fourths of them have at least 10 years experience. Non-CSMP teachers have a little more diversity in their experience.

CSMP teachers are similar in teaching experience to non-CSMP teachers. In both groups, more than seventy percent of the teachers surveyed had more than ten years experience and neither group had first year teachers.

A majority of teachers in both groups have taught sixth grade and lower grades, and a similar number of teachers in both groups have taught sixth grade plus both lower and higher grades. However, while a quarter of the CSMP teachers have taught only sixth grade, versus 4% of the non-CSMP teachers, only 4% of them have taught sixth grade plus higher grades, versus almost a quarter of the non-CSMP teachers.

2. Classroom Data

	Percent Responding "Yes" CSMP	Non-CSMP
Are classes ability grouped?	50%	60%
Is homework regularly assigned?	68%	88%
Do you make use of hand calculators?	91%	31%
* Do you regularly have an aide assigned to your classroom?	18%	12%

* CSMP teachers said aides were responsible for checking workbooks, assignments, and students' desk work, and Non-CSMP teachers reported aides were responsible for working with Special Education students or individual students.

CSMP and Non-CSMP teachers were similar in that roughly half their classes were ability grouped, homework was regularly assigned to a majority of their classes, and few had aides regularly assigned. However, three times as many CSMP classes as Non-CSMP classes used hand calculators.

"How many minutes are mandated by your district/school for math?" (if applicable)

	CSMP	Non-CSMP
Less than 30		
30-44	05%	04%
45-55	41%	35%
56-60	09%	08%
>60		
No response (probably no mandate)	45%	53%
Mean number of minutes	51	48

"On the average, how much time does your class spend on math each day?"

	CSMP	Non-CSMP
Less than 45 minutes	0%	04%
45-50 minutes	45%	56%
51-59 minutes	25%	12%
60 minutes	20%	28%
>60 minutes	10%	00%
Mean number of minutes	54	51

CSMP and Non-CSMP classes were also similar in the amount of time mandated for mathematics instruction; only about half the teachers reported a mandate, usually 45-55 minutes. The mean number of minutes actually spent in math class was also similar (54 versus 51 minutes).

"About what percent of this time is spent on: teacher-led work? small group work? individual work?"

	CSMP	Non-CSMP
Teacher-led work	67%	44%
Individual work	11%	19%
Small group work	22%	37%

CSMP teachers spend more time on teacher-led work than their non-CSMP counterparts, and less time on individual and small group work.twice as much of CSMP teachers' time is spent on small group work versus work with an individual student.

"During a typical math class, what percent of your time is spent on: "

		CSMP	Non-CSMP
Developing a lesson at the board (or in front of the class)	Mean	52%	33%
	Range	(25%-80%)	(7%-60%)
Supervising while students do work on their own (other than tests)		16%	26%
		(08%-30%)	(10%-60%)
Leading the class in reviewing assignments they have completed		09%	17%
		(02%-25%)	(05%-40%)
Working individually with a student or small group of students		11%	19%
		(08%-25%)	(02%-50%)

As might be expected, CSMP teachers spend a majority of their time developing a lesson at the board while Non-CSMP teachers' time was more evenly distributed across all four categories.

"What textbooks, if any, are you currently using in your classroom?"

	CSMP	Non-CSMP
Scott-Foresman		58%
Addison Wesley		15%
Houghton-Mifflin	14%	12%
Harcourt Brace		04%
D.C. Heath		04%
Local County Guide		04%
Local Pilot Program		04%
"Homemade" Materials	05%	

(Non-CSMP totals exceed 100% because teachers reported using two texts or programs.)

Very few CSMP teachers reported using materials other than CSMP materials; a "traditional" text to supplement CSMP and "homemade" materials produced by a teacher.

3. Lesson Coverage

Supplementing

"Do you supplement your regular math program with additional activities?"

	CSMP	Non-CSMP
Yes	93%	100%
No	0%	0%
No response	07%	

"If so, what topics do you cover?" (Responses sum to more than 100% because multiple responses were given.)

	CSMP	Non-CSMP
Basic operations (whole numbers)/ computation	50%	08%
Basic operations with fractions	36%	04%
Fractions	18%	04%
Basic operations with decimals	23%	08%
Decimals	14%	08%
Word problems	09%	23%
Percent	23%	04%
Geometry	18%	15%
Metrics/measurement	23%	15%
Mental arithmetic/estimation	05%	15%
Prime numbers	05%	
Negative numbers	05%	
Logic	05%	04%
Probability	05%	04%
Algebra		04%
Number theory		04%
Scale drawing		04%
Introduction to statistics		04%
Set theory		04%
Interest rates		04%
Computers/calculators/abacus		19%
Bases		08%
Graphs		08%
Problem solving		12%
Math lab/games	05%	26%

"Is this supplementing usually for:... "

	CSMP	Non-CSMP
A few minutes	58%	23%
A full math period	18%	35%
Several consecutive math periods	05%	35%
Other	05%	12%
No response	14%	15%

"Does it usually occur: "

	CSMP	Non-CSMP
Daily	27%	09%
Two to four times a week	18%	28%
Weekly	18%	13%
Two to three times a month	14%	28%
Monthly	09%	08%
Other		
No response	14%	14%

"Over the course of the year, about what percent of the math time is used for this supplemental work?"

	CSMP	Non-CSMP
None	0%	0%
Less than 10%	23%	23%
10 - 19%	36%	36%
20 - 29%	14%	18%
30 - 39%	09%	04%
40 - 49%	0%	04%
50 - 59%	0%	0%
Greater than 60%	0%	0%
No response	18%	15%
Mean percent	14%	14%

Both CSMP and non-CSMP teachers supplement an average of 14% of the time, but there are differences between the two groups on what is supplemented. Many more CSMP teachers supplement the program with basic operations/computation exercises, using whole numbers, fractions and decimals. Other topics CSMP teachers supplement with are geometry, metrics, and percent. In contrast, non-CSMP teachers supplement over a broader array of topics including many that could be called "enrichment".

Supplementing patterns differ from CSMP classrooms to non-CSMP classrooms. While the majority of CSMP teachers supplement for a few minutes each day, non-CSMP teachers tend to supplement for longer periods at a time.

"Were there any skills or concepts that your present math program assumed students would know at the beginning of the year, which, in fact, many did not know?"

	CSMP	Non-CSMP
No	32%	42%
Yes, basic number facts	23%	12%
place value	14%	15%
mental arithmetic	05%	31%
algorithm for whole number multiplication	09%	04%
algorithm for whole number division	23%	04%
familiarity with fractions	14%	15%
operations with fractions	45%	15%
familiarity with decimals	09%	08%
operations with decimals	18%	08%
estimation	0%	35%
word problems	18%	38%
geometry	05%	19%
probability	0%	15%
other (please specify)	09%	08%

"Are there any skills or concepts that you think students should know by the end of sixth grade which are not adequately covered by your present math program?" (Check as many as apply)

	CSMP	Non-CSMP
No	23%	50%
Yes, basic number facts	09%	23%
place value	18%	12%
mental arithmetic	18%	12%
algorithm for whole number multiplication	09%	04%
algorithm for whole number division	32%	08%
familiarity with fractions	09%	08%
operations with fractions	45%	19%
familiarity with decimals	09%	12%
operations with decimals	23%	0%
estimation	09%	15%
word problems	14%	19%
geometry	14%	04%
probability	14%	08%
other (please specify)		
Area, volume perimeter (CSMP)		
Problem-solving, measurement (non-CSMP)		

At the beginning of sixth grade, according to both groups of teachers, there were few, if any skills or concepts which their students did not know. CSMP teachers frequently cited fractions, whole number division and basic number facts as skills their students did not know on entering sixth grade. Non-CSMP teachers frequently cited word problems and estimation as skills their students did not know at that grade level.

Twice as many Non-CSMP teachers as CSMP teachers indicated that there were skills needed by the end of Grade 5 which were not adequately covered by their programs. CSMP teachers frequently cited algorithms for whole number division, operations with fractions and operations with decimals as skills not adequately covered by their present program. Non-CSMP teachers frequently cited basic number facts, operations with fractions and estimation.

TEACHER ATTITUDES

Sixth grade CSMP and Non-CSMP teachers were asked to respond to three sets of questions designed to elicit their attitudes toward their present math program. The first set of questions asked teachers to rate the characteristics of their math class. The second set of questions asked teachers to compare their current math program with the one they had taught previously. The third set of questions asked teachers to respond to a series of questions about math instruction for low ability students.

The next section summarizes CSMP and Non-CSMP teachers' statements about the best and worst aspects of their present program. (A complete listing of teachers' responses to both the best and worst aspects is shown in Appendix A.) A summary of both groups' overall evaluations of their present math program and a complete listing of teachers' comments is given at the conclusion of this chapter.

1. Characteristics of Math Class

Below are several pairs of statements for your math class this year. Please circle the letter which best describes the relative balance or emphasis, between the two.

A mean score (M) was derived for each grade by assigning a score of 1 to a response of A, ..., 5 to E and then taking the average. Thus, the higher the mean score, the more in agreement with the right-hand statement.

Achievement is oriented towards basic skills.	A	B	C	D	E	Achievement is oriented towards more general progress
CSMP	5%	9%	32%	19%	34%	2.9
Non-CSMP	8%	35%	38%	15%	4%	2.7

Lesson plans are followed in great detail.	A	B	C	D	E	Lesson plans serve only as a general guide.
CSMP	45%	36%	5%	14%	0%	1.9
Non-CSMP	0%	15%	42%	15%	27%	3.5

Lessons proceed briskly.	A	B	C	D	E	Lessons proceed thoroughly.
CSMP	0%	14%	45%	23%	18%	3.5
Non-CSMP	4%	8%	26%	47%	13%	3.5

Content of lessons is challenging for most students.	A	B	C	D	E	Content of lessons easily mastered by most students.
CSMP	24%	43%	29%	0%	5%	2.0
Non-CSMP	8%	30%	48%	13%	0%	2.6

Best learning takes place when teacher leads class.	A	B	C	D	E	Best learning takes place when teacher works individually with students.
CSMP	0%	27%	59%	14%	0%	2.9
Non-CSMP	14%	33%	33%	14%	6%	2.6

Math class is one of my favorite times of the school day.	A	B	C	D	E	Math class is one of my least favorite times of the school day.
CSMP	57%	24%	14%	5%	0%	2.0
Non-CSMP	35%	58%	8%	0%	0%	1.7

Math class has a business-like atmosphere.	A	B	C	D	E	Math class has a fun atmosphere.
CSMP	9%	5%	50%	23%	14%	3.3
Non-CSMP	8%	19%	62%	12%	0%	2.8

Math class is oriented towards solving specific problems.	A	B	C	D	E	Math class is oriented towards creative activities.
CSMP	0%	27%	41%	27%	5%	3.1
Non-CSMP	12%	50%	38%	0%	0%	2.3

Math is one of the harder subjects to teach.	A	B	C	D	E	Math is one of the easier subjects to teach.
CSMP	0%	25%	30%	20%	25%	3.5
Non-CSMP	0%	8%	15%	58%	19%	2.3

In discussing teachers' ratings of their math classes, differences of .5 or greater are deserving of comment. Thus, it can be said that, compared to their non-CSMP counterparts, CSMP teachers tended to:

- follow lesson plans in great detail (versus using them as a general guide).
- view the content of the lessons as challenging for most students (versus being easily mastered by most students)
- view math class as having more of a fun atmosphere (versus business like).
- view math class as oriented toward creative activities (versus specific problem solving).
- regard math as one of the easier subjects to teach (versus harder).

2. " How would you rate your present math text or math program compared to previous math programs you have used on the following items? (Please omit this question if you have not taught sixth grade math with a different textbook or program.)" The mean score, given at the right of each item, was calculated in the usual way.

a) Time required for daily preparation is

	(less)	(about the same)	(more at first but about the same after a year's experience)	(more at first and continues to be after a year's experience.)	M
CSMP	05%	0%	62%	33%	2.2
Non-CSMP	15%	50%	30%	05%	2.3

b) Overall quality

	(much lower)	(slightly lower)	(about the same)	(slightly higher)	(much higher)	M
CSMP	0%	0%	11%	37%	53%	4.4
Non-CSMP	05%	10%	30%	20%	35%	3.7

c) Student interest and involvement

	(far less)	(a little less)	(about the same)	(a little more)	(far more)	M
CSMP	5%	0%	05%	32%	58%	4.4
Non-CSMP	0%	05%	30%	50%	15%	3.8

d) Students' achievement in computational skills

	(far less)	(a little less)	(about the same)	(a little more)	(far more)	M
CSMP	10%	20%	25%	45%	0%	3.1
Non-CSMP	05%	05%	35%	45%	10%	3.5

e) Student's' achievement in mathematical concepts

	(far less)	(a little less)	(about the same)	(a little more)	(far more)	M
CSMP	0%	0%	15%	35%	50%	4.4
Non-CSMP	0%	11%	42%	32%	16%	3.5

f) Students' ability to logical reasoning

	(far less)	(a little less)	(about the same)	(a little more)	(far more)	M
CSMP	0%	0%	05%	30%	65%	4.6
Non-CSMP	05%	25%	40%	25%	05%	2.8

g) Students' facility in solving word problems

	(far less)	(a little less)	(about the same)	(a little more	(far more)	M
CSMP	0%	15%	25%	40%	20%	3.7
Non-CSMP	05%	20%	30%	45%	0%	3.2

h) Appropriateness for low ability students

	(much lower)	(slightly lower)	(about the same)	(slightly higher)	(much higher)	M
CSMP	40%	20%	10%	30%	0%	2.3
Non-CSMP	11%	16%	37%	32%	05%	3.1

i) Appropriateness for high ability students

	(much lower)	(slightly lower)	(about the same	(slightly higher	(much higher)	M
CSMP	0%	0%	0%	10%	90%	4.9
Non-CSMP	10%	15%	15%	50%	10%	3.4

Again, differences of .5 or greater are deserving of comment. Compared to non-CSMP teachers. CSMP teachers gave higher ratings than Non-CSMP to the following;

- overall quality
- student interest and involvement
- student achievement in mathematical concepts
- student ability to do logical reasoning
- student facility in solving word problems
- more appropriate for high ability students and lower ratings in appropriateness for lower ability students

3. Low Ability Students

"Below are given pairs of statements. Please circle the letter which best describes what you think regarding math instruction for low ability students." and the means were derived as they were for the previous two sets of questions.

		A	B	C	D	E	
Best learning takes place in a group in which various ability levels are represented.	CSMP	18%	18%	09%	36%	18%	Best learning takes place in a group in which all students are of the same ability. 3.2
	Non-CSMP	12%	04%	35%	35%	15%	3.4

		A	B	C	D	E	
It is important to concentrate on learning basic computational skills.	CSMP	14%	27%	36%	09%	14%	It is important to provide exposure to a wide variety of topics in mathematics. 2.8
	Non-CSMP	12%	23%	46%	15%	47%	2.8

		A	B	C	D	E	
Best learning takes place in teacher-led situations.	CSMP	02%	24%	33%	09%		Best learning takes place when students are working individually. 2.7
	Non-CSMP	16%	20%	36%	28%	05%	2.8

		A	B	C	D	E	
It is better to touch lightly on a new topic several times.	CSMP	18%	32%	27%	18%	05%	It is better to stick with a new topic until mastered. 2.6
	Non-CSMP	04%	19%	54%	15%	08%	2.7

		A	B	C	D	E	
Special instructional arrangements should be made for these students.	CSMP	19%	43%	14%	14%	10%	The regular classroom provides an adequate instructional setting for these students. 2.5
	Non-CSMP	15%	27%	38%	15%	04%	2.7

Manipulatives work best with these students.	A	B	C	D	E	Paper and pencil works best with these students.
CSMP	19%	33%	43%	05%	0%	2.3
Non-CSMP	12%	48%	24%	16%	0%	2.4

It is better to set goals that will insure success.	A	B	C	D	E	It is better to set goals that are challenging.
CSMP	27%	41%	23%	09%	0%	2.1
Non-CSMP	15%	46%	23%	12%	04%	2.4

Best learning takes place when a teacher can give individual help.	A	B	C	D	E	Best learning takes place when a teacher can work with a small group.
CSMP	45%	14%	18%	23%	0%	2.2
Non-CSMP	12%	27%	54%	08%	0%	2.7

There were virtually no differences between CSMP and non-CSMP teachers. Only for the statement "best learning takes place when a teacher can give individual help" did a difference of .5 occur. Non-CSMP teachers were more likely to say that "learning takes place when a teacher can work with a small group."

"Does your school provide any arrangements for your low ability students?"

	CSMP	Non-CSMP
Resource teacher/services/room	45%	42%
Title I teachers/aides	18%	12%
Special grouping	09%	12%
Smaller class size		04%
Tutors/aides	05%	15%
Classroom instruction	05%	
Unspecified	05%	
No	09%	08%
No response	14%	19%

Both CSMP and Non-CSMP teachers have special arrangements for low ability students. The most frequent arrangement in both groups was a resource room and/or teacher, followed by Title I services. Other arrangements tended to be within-classroom strategies like special grouping within the class or "catch-up" instruction sessions scheduled periodically.

Best features. Asked to comment on the best aspects of the present math program, CSMP teachers mentioned that it challenged students, fostered the development of analytic thinking, and encouraged creativity. To CSMP teachers the fact that CSMP stressed more than basic skills was a strong point, and they also mentioned that their students were enthused and motivated by the program.

Non-CSMP teachers commented that their program provided for individualization and ability grouping. They thought their programs benefitted average and below average students more than many programs, and commented on the organization and logical presentation of their texts.

Worst features. According to CSMP teachers, weak points of CSMP included the perceived need for traditional algoritms in the basic operations. Some teachers said the materials could be better organized and that the spiral is too spread out. A few cited the need for more word problems and others believe that low ability students are less suited to the program than others.

Non-CSMP teachers cited the need for word problems also, for more problem solving and for more variety. (A complete set of teachers' comments for "best" and "worst" aspects is given in Appendix A.)

Overall Evaluation. The vast majority of CSMP teachers gave highly favorable evaluations of the program although some teachers thought it worked better with high or average ability students than it did with low ability students. An often cited strong point was its impact on students' thinking. Non-CSMP teachers, on the other hand, while generally satisfied with their programs, stated that it was adequate but cited the need for supplementary enrichment. A complete listing of both groups' comments for overall evaluation are given on the following pages.

"What is your overall evaluation of your present math program?"

CSMP

- Excellent.
- A-.
- Adequate to our curriculum but no one book does it all.
- With decrease in size of groups, very good.
- It is fantastic.
- Continue program for above average students.
- Excellent.
- Good for above average students.
- Interesting to teach but could be made better with changes.
- Excellent for strong students.
- Outstanding, excellent, exciting to teach.
- Very good. It covers the basic facts and computation and causes children to think and analyze which is not the case in most traditional programs.
- I believe I could prepare materials more interesting, more basically meaningful, and more inclusive of psyches of a greater range of my class members.
- Super. Difficult for non-math oriented to teach at upper grade levels. Requires someone who loves math to be effective.
- Quite an improvement over our previous programs but has flaws that need to be ironed out.
- Definitely above average.
- Acceptable.
- Most teachers in the school, if given the choice, would not continue with this program. It has many good aspects, however, which should be incorporated in any math program. I would like to see a text which could be used along with the present materials for a better balance in presentation.
- Excellent, super. Children are able to reason and figure out word problems much better than in years past.

NON-CSMP

- Not adequate. We expect to change next fall.
- Adequate and more challenging and interesting because of the combination of the two. Students are getting basic skills and concepts. I can keep in touch with the ability level of each student as well as offer them problem solving challenges.
- B-.
- I don't like it.
- Very good.
- Good. I am the teacher, so I put a lot into it and get positive results.
- Fair. There needs to be more available materials for widening skills for the more capable students.
- I'm very pleased with it.
- I think it's super.
- Superior when supplemental material is also included.
- Very good.
- I like it.
- This text is fine if supplemented with other activities. I have yet to find a math series that does not need supplements from other resources.
- It's workable. Parents can still identify and get involved with what we are doing.
- B-.
- Minor improvements could be made, but overall the program is good.
- I'm pleased with its results.
- Excellent.
- I am pleased with our present math program.
- I am more satisfied with it this year than any year I have taught.
- Excellent.
- Very good.

CSMP PROGRAM FEATURES

CSMP Teachers Only

1. Questions on the Spiral Approach

"What do you think of CSMP's spiral approach, where the teacher goes on to a new lesson in a different strand, even though not all students may have understood the last lesson?" A mean score was derived by assigning a score of 1 to A,..., 4 to D and taking the average.

(An arrow (↓) has been drawn to indicate where on the scale the mean response falls, A=1, ..., D=4.)

	Strongly Agree	Agree	Disagree	Strongly Disagree	M
It is less frustrating for the students than a mastery approach.	A 18%	B ↓ 45%	C 32%	D 05%	2.1
I would prefer spending 2-4 consecutive days on a new topic.	A 13%	B ↓ 39%	C 35%	D 13%	2.5
It gives the students time to really absorb a topic if they are introduced to it in small doses over a long period.	A 17%	B ↓ 57%	C 17%	D 09%	2.2
I have to repeat lessons because students don't remember.	A 04%	B ↓ 35%	C 48%	D 13%	2.2
It only works for some students. (Please specify_____)	A 15%	B 35%	C ↓ 30%	D 20%	2.7

Students feel less pressured than in a mastery approach.	A 18%	B 68%	C 14%	D 0%	2.0
It takes too long before the class returns to a topic.	A 0%	B 37%	C 45%	D 18%	2.8
It is more interesting for students than a mastery approach.	A 27%	B 64%	C 09%	D 0%	1.8
Students never master content.	A	B	C 83%	D 17%	3.2

Teachers' responses showed an overall agreement with the program's philosophy (i.e., they agreed with all positively framed questions and disagreed with all negatively framed questions) but most questions about the spiral/mastery dimension elicited both "strongly agree" and "strongly disagree" responses.

2. Training

"Before you began teaching CSMP:

How many hours of CSMP training did you receive?"

None	0%
10	25%
10-15	21%
16-39	25%
1 CEMREL Workshop (or its equivalent for 40-50 hours)	08%
2 CEMREL Workshops (or the equivalent of more than 50 hours)	21%
Mean number of hours	29

"How were those pre-CSMP training sessions scheduled?"

a week or two of training before the program began	89%
a day or so before plus regularly scheduled meetings throughout the year	11%
a day or so before	0%

"What percentage of the training sessions were devoted to...?"

Overview of the program's philosophy and goals (05%-50%)	14%
Discussion/presentation of math content by trainer (05%-85%)	40%
Demonstration/discussion by trainer of specific lessons (05%-75%)	30%
Practice by participants of teaching various lessons (0%-40%)	16%

"After you began teaching CSMP:
How many hours of CSMP training did you have?"

None	84%
10 hours	04%
20-30 hours	08%
45 hours	04%

Comments:

The majority of CSMP teachers have had less than the mandated 40 hours of pre-CSMP training. In fact, nearly half had less than 15 hours. The vast majority of teachers received this training in a block of time before beginning the program. Time in the training sessions was most frequently spent on discussions/presentations of math content and demonstration/discussion of specific lessons. The overwhelming majority of teachers received no training after starting to teach CSMP.

For those teachers who did attend, their attendance was voluntary, and sessions were usually regularly scheduled throughout the year. The trainer varied at each site; one site had the services of a CSMP/CEMREL trainer, another a local teacher, another two were led by local administrators given CSMP responsibility.

3. CSMP Supplementing

"If you taught CSMP before, how does your supplementing this year compare to last year?"

Same	54%
More	38%
Less	8%

Topics supplemented were:

Measurement/Metrics	40%
Fractions	40%
Decimals	30%
Percent	30%
Basic Operations/Computation	30%
Multiplication	20%
Division	02%
Place Value	20%
Problem Solving	10%
Estimation	10%
Geometry	10%

Less supplementing occurred with multiplication and division.

The majority of teachers who have taught CSMP before report supplementing about the same, but 38% reported spending more time.

In addition to collecting data on teachers' implementation and attitudes, we also attempted to relate the findings from the 1982 round of MANS testing to the implementation variables. However the data from both CSMP and Non-CSMP classes showed that no variable or cluster of variables explained differences in MANS scores from one class to another.

Appendix A

CSMP and Non-CSMP Evaluations

"What are the best aspects of your present program?
(A complete listing of both CSMP and Non-CSMP teacher statements.)

CSMP

- Analytic thinking skills, the ability to see there are often many solutions to a problem and a variety of ways to attach it; probability.
- Creativity of lessons, format pre-planned, supplemental materials, workbooks and worksheets at every level.
- The book presents most concepts presented in the Curriculum Guide.
- The detailed math curriculum we have worked out.
- Student involvement with mathematics, not basic skills alone
- Challenging to bright students, provides plenty of material so students can seek their limit, teaches mathematics not arithmetic.
- High motivation, developing some enthusiasm for math, striving to become proficient and excel for learning's sake.
- The logical thinking as well as abstract thinking.
- Challenging material presented; logical thinking stressed.
- Interesting material, a variety of problems; student interest is high.
- Flexibility.
- Enthusiasm the lesson elicits from students, collective problem solving interaction among students.
- Utilizing lessons caused logical thinking in conjunction with basic math facts and operations.
- Stress on logic, probability.
- Spiral approach, creative thinking, student enthusiasm, challenge to teacher.
- Challenge to all students, good for above average and high level students, encourages problem solving; analyzing and predicting; high levels of thinking. Presents number bases quite well.
- Creative, challenging, diverse. The spiral approach is very effective.
- Spiral.
- Challenge.
- The spiral except for below average students; excellent for above average students. Wide variety of experience. Helps promote logical reasoning.
- Entire program is great

NON-CSMP

- Small group work, inter-student help, only reinforcement type homework.
- Kids kept on the same presentation level but the pilot program allows kids who excell to be challenged. I know where each student is regarding math needs. There are many possibilities for teaching and review.
- Concepts are logically presented.
- Adequate drill.
- Pre-test/post-test.
- The activities are good (generally).
- I try to use the banded approach and a variety of materials.
- Assignments cover a wide range of ability levels. Much extra practice where needed is available. The text doesn't assume students understand the materials. An excellent step by step approach. Lessons follow in a logical sequence.
- Allowing each student to progress and not get "bogged down" by slower students.
- Individuality. Letting a child move at his own rate.
- Work is clearly presented and logically ordered and developed. Immediate reinforcement on a daily basis. Set up lessons according to individuals needs.
- Great for average or below average students.
  Presentation of new material is rather thorough.
- Plenty of good problems. Good word problems. The text is excellent.
- It's a Joplin Plan: We only have two levels to teach and we are able to move at a faster rate to master our skills.
- Flexibility.
- Organization, business-like atmosphere, retaining interest in doing well.
- Good enrichment program, flexible enough to provide for acceleration, fun.
- Ability grouping with supplemental work.
- Student achievement and interest for the most part have been excellent.

"What are the worst aspects of your present program and what changes in content do you recommend?"

(A complete listing of both CSMP and Non-CSMP teacher statements.)

CSMP

- Provide more standard algorithms in addition to what is now present and skill sheets. For further enrichment and remediation, some standard evaluation means.
- More traditional algorithms on fractions, decimals, long division, percent area and volume; need assessment tests on a regular basis for report cards.
- Nothing.
- Text provides very few word problems. Organization of staff requires larger groups than I feel are good. Add staff to reduce class size.
- Answer keys are not printed for easy use..
- Too much correcting time required on open-ended questions; spiraling is too spread out.
- Several lessons should be taught together.
- Overcoming the apathy and resistance of a very small minority of students and parents.
- Not enough drill on repetition of basic skills; how to do fractions and decimals, percentage.
- Much teacher preparation; condense manual; hard to evaluate, include testing material.
- Dealing with low students on lessons that are heavy in logical thinking. Hard to reteach; help to have extra examples on strategies for low ability students with their shorter attention span, we need more explanation to help us prepare lessons.
- Spiral leaves mastery on too incidental a basis; students not math oriented tend to stay lost and have difficulty seeing the importance of progress.
- Reorganize some topics (like rounding in the first semester), add more in fraction area, redo geometry making it much more difficult, and spread out workbooks so students do a little every day.

- Low ability students often left behind. They turn off. Program is not for everyone. More provisions for individual differences should be made. Some lessons are long and there is not enough time for individual help and rest of curriculum is short changed.
- Not enough drill on problems they should know by for grade. Hard to give grades.
- Not enough word problems. Geometry not appropriate or needed at this grade level. Too many lessons on number bases.
- Students lack practice with computational skills and slow students are lost. Lesson pages are difficult to find and there is a lack of explanation for difficult workbook and worksheet pages. Lessons too long for students and students don't get to move about and go to the board.
- None

NON-CSMP

- Classes are way too large, and there is no aide assistance. I would like to have a wider variety of materials to choose from.
- More help to ensure success by all students.
- I sometimes need an aide because I'm running two groups, and I run out of time.
- I prefer the spiral approach of CEMREL. Our present program masters one topic before moving on.
- Not enough word problems; need to work on problem solving.
- Needs more variety; more advanced math concepts could be taught in this grade.
- More word problems that apply to daily living. This text is too easy for brighter students.
- There is a greater need for practical verbal problem solving of problems that would come up in daily living.
- Not enough pre/post-tests.
- I would suggest prime factoring as a way of reducing before multiplying fractions.
- It would prove helpful at times to work with on major concept (fractions through all operations rather than breaking after one small segment).
- Old books.
- Problem solving poor. I'm using new (Weekly Reader) materials called problem solving strategies.
- Lack of story problems; lack of adequate drill.
- Not enough problem solving review and applications of skills learned earlier. Once a concept is learned it is not adequate reviewed throughout the year.
- Not challenging enough for the best students, not enough story problems; not enough reinforcement style questions.