Local Systemic Change *through* Teacher Enhancement

Mathematics (Grades 6-12)

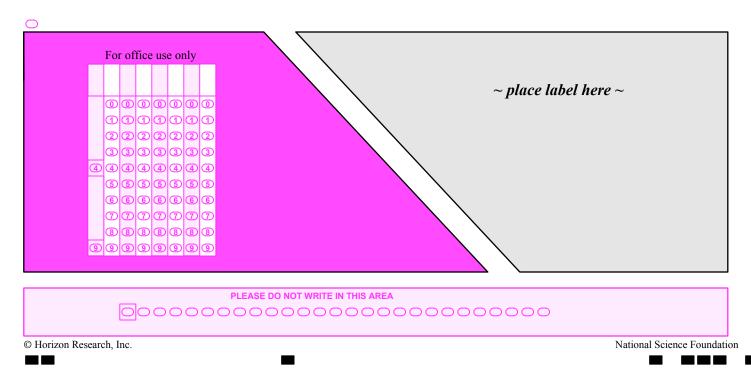
Teacher Questionnaire

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63 62						. D	arken ovals completely, but do not stray
61	into	adjacent ovals. Be sure to erase c	omp	oletely any si	ray marks.		
60 59	A.	. Teacher Demographic Inform	atio	n			
$\begin{array}{c} 61\\ 60\\ 59\\ 58\\ 57\\ 56\\ 55\\ 54\\ 53\\ 52\\ 51\\ 50\\ 49\\ 48\\ 47\\ 46\\ 43\\ 42\\ 41\\ 40\\ 39\\ 38\\ 37\\ 36\\ 35\\ 34\\ 33\\ 32\\ 31\\ 30\\ 29\\ 28\\ 27\\ \end{array}$	1	A #0 1/01/	20	Ethnicity A	***		Hignonia on Latino
56	1.	Are you:	2a.	Ethnicity - A (Darken one		0	Hispanic or Latino Not Hispanic or Latino
55		O Male		<u> </u>	,		
54 53		O Female	2b.	Race - Are ye (Choose one		0	American Indian or Alaska Native Asian
52				(encose one	01 11101 0.)	0	Black or African American
51						0	Native Hawaiian or Other Pacific Islander White
49	2		(D.	.1 11 1. 4	h = (= = = 1 =)	\cup	white
48	3.	Describe your educational background:					
47		 Undergraduate major in mathem Undergraduate minor in mathem 					
45		 Graduate-level major or minor i 	n mat			atior	1
44		 Certification to teach mathemati None of the above 	cs				
42							
41	4.	How many years have you taught prior	to thi	s school year?	(Darken one o	val.)	
40 39		0-2 3-5 6-10		11-15	16-20	21-25	5 26 or more
38		0 0 0		\bigcirc	\bigcirc	\bigcirc	\bigcirc
37							
35	5.	When did you last complete a mathema	tics c	ourse for colle	ge credit? (Dar	ken o	one oval.)
34		\bigcirc In the last 5 years \bigcirc 6-10 y	ears a	igo 🔾	11-20 years age	0	O More than 20 years ago
32	(. 1	1 (1			
31	6.	Have you taught one or more classes of pre-calculus, calculus, discrete mathematical discrete disc					
30 29		\bigcirc Yes \bigcirc No	,		8		,
28							
		The National Science Foundatio	n's l	Local Syster	mic Change	(LS	C) through Teacher Enhancement
25			Р	rogram's C	ore Evaluati	ion	
24	v	Zou hour hour colocial to nonticipate in th			tion of the follo		fundad Lagal Sustancia Change (LSC)
22		You have been selected to participate in th rogram. LSC is a National Science Found				-	hat has funded more than 80 local projects
21	th	hat have offered science and/or mathemat	ics pr	ofessional dev	elopment to tea	chers	around the country. The cover letter
19		ccompanying this questionnaire identif he focus of that LSC project.	ies th	ie LSC projec	t in your area,	as w	ell as the instructional materials that are
18		1 0					
17		everal times over the course of the LSC, of participate in the local project's profession	-		1		res to a sample of teachers who are targeted
15		uestionnaire even if you have not yet part					
14							-selected teachers in each project is asked to
13		rovide additional information in interview ederal funding, each LSC project must pa					sroom visit. In order to continue receiving
26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4							
10		_	-	-		-	otect teacher confidentiality. Your responses
8					-		ther teachers in your project and used only
7		or the LSC evaluation. The name label ar uestionnaires to the proper teachers and f		-	-		
6 5	-			•			the questionnaire, you should remove the
4		ame label and return the questionnaire as	•		•		1

The National Science Foundation's Local Systemic Change (LSC) through Teacher Enhancement **Program's Core Evaluation**

B. Teacher Opinions and Preparedness

7. Please provide your opinion about each of the following statements. (Darken one oval on each line.)

(Darken one oval on each line.)	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
a. Students generally learn mathematics best in classes with students of similar					
abilities.	1	2	3	4	5
b. I feel supported by colleagues to try out new ideas in teaching mathematics.	1	2	3	4	5
c. Mathematics teachers in this school have a shared vision of effective					
mathematics instruction.	1	2	3	4	5
d. Mathematics teachers in this school regularly share ideas and materials					
related to mathematics.	1	2	3	4	5
e. Mathematics teachers in this school are well-supplied with materials for					
investigative mathematics instruction.	1	2	3	4	5
f. I have time during the regular school week to work with my peers on					
mathematics curriculum and instruction.	1	2	3	4	5
g. I have adequate access to calculators for teaching mathematics.	1	2	3	4	5
h. I have adequate access to computers for teaching mathematics.	1	2	3	4	5
i. I enjoy teaching mathematics.	1	2	3	4	5
j. I am well-informed about the NCTM Standards for the grades I teach.	1	2	3	4	5
k. The mathematics program in this school is strongly supported by local					
organizations, institutions, and/or businesses.	1	2	3	4	5

8. In the left section, please rate each of the following in terms of its **importance** for effective mathematics instruction in the grades you teach. In the right section, please indicate how **prepared** you feel to do each one. (Darken one oval in each section on each line.)

		Importance				Preparation				
		Not Important	Some- what Important	Fairly Important	Very Important	Not Adequately Prepared	Some- what Prepared	Fairly Well Prepared	Very Well Prepared	
a.	Provide concrete experience before abstract	_	_	_	_			_		
	concepts.	1	2	3	4	1	2	3	4	
b.	Develop students' conceptual understanding of mathematics.	1	2	3	4	D	2	3	4	
c.	Take students' prior understanding into account when planning curriculum and instruction.	1	2	3	4	1	2	3	4	
d.	Practice computational skills and algorithms.	1	2	3	4	1	2	3	4	
e.	Make connections between mathematics and other disciplines.	1	2	3	4	D	2	3	4	
f.	Have students work in cooperative learning groups	s. ①	2	3	4	1	2	3	4	
g.	Have students participate in appropriate hands-on									
8.	activities.	1	2	3	4	1	2	3	4	
h.	Engage students in inquiry-oriented activities.	1	2	3	4	1	2	3	4	
i.	Have students prepare project/laboratory/research	_	_	_	_			_		
	reports.	1	2	3	4	1	2	3	4	
j.	Use calculators.	1	2	3	4	1	2	3	4	
k.	Use computers.	1	2	3	4	1	2	3	4	
1.	Engage students in applications of mathematics									
	in a variety of contexts.	1	2	3	4	1	2	3	4	
m.	Use performance-based assessment.	1	2	3	4	1	2	3	4	
n.	Use portfolios.	1	2	3	4	1	2	3	4	
0.	Use informal questioning to assess student understanding.	1	2	3	4	1	2	3	4	

9.	My principal: (Darken one oval on	each line.)	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
	a. Encourages me to select mathen address individual students' learn	atics content and instructional strategies that ning.	Q	9	9	G	Ģ
	b. Accepts the noise that comes wi	h an active classroom.	Ð	9	Q	Q	G
		of current national standards in mathematics	Q	9	9	G	G
	d. Encourages innovative instruction	onal practices.	Ð	9	Q	G	G
	e. Enhances the mathematics progrequipment.	am by providing me with needed materials and	Φ	Q	9	Ģ	Ģ
	f. Provides time for teachers to me	et and share ideas with one another.	Q	Q	G	Q	G
	g. Encourages me to observe exem	plary mathematics teachers.	Q	Q	G	G	G
	h. Encourages teachers to make co	nnections across disciplines.	Ð	Q	G	Q	G
	i. Acts as a buffer between teacher	s and external pressures (e.g., parents).	Ð	Q	9	9	5

10. Are you the mathematics department chair for your school? (Darken one oval.)

- \bigcirc No (continue with Question 11)
- Yes (skip to Question 12)

11.

Our school does not have a mathematics department chair (skip to Question 12)

•	Μ	y department chair: (Darken one oval on each line.)	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
	a.	Encourages me to select mathematics content and instructional strategies that					
		address individual students' learning.	Ð	9	9	\bigcirc	G
	b.	Accepts the noise that comes with an active classroom.	Ð	Q	9	Q	G
	c.	Encourages the implementation of current national standards in mathematics					
		education.	G	\bigcirc	G	\mathbf{Q}	G
	d.	Encourages innovative instructional practices.	Q	Q	Q	Q	G
	e.	Enhances the mathematics program by providing me with needed materials					
		and equipment.	Q	Q	Q	Q	G
	f.	Provides time for teachers to meet and share ideas with one another.	Ð	Q	G	Q	G
	g.	Encourages me to observe exemplary mathematics teachers.	Q	Q	Q	G	G
	h.	Encourages teachers to make connections across disciplines.	Q	Q	Q	Q	G

12. Many teachers feel better prepared to teach some mathematics topics than others. How well prepared do you feel to teach each of the following topics at the grade levels you teach, whether or not they are currently included in your curriculum? (Darken one oval on each line.)

the grade levels you teach, whether or not they are currently included in your curriculum? (Darken one oval on each line.)	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
a. Estimation	Ð	Q	G	Q
b. Measurement	Ģ	Q	Q	Q
c. Pre-algebra	Ģ	Q	Q	Q
d. Algebra	Ģ	Q	Q	Q
e. Patterns and relationships	G	Q	G	A
f. Geometry and spatial sense	Ģ	Q	Q	A
g. Functions (including trigonometric functions) and pre-calculus concepts	G	Q	G	A
h. Data collection and analysis	Ģ	Q	Q	Ø
i. Probability	G	Q	G	A
j. Statistics (e.g., hypothesis tests, curve fitting and regression)	Ģ	Q	G	Q
k. Topics from discrete mathematics (e.g., combinatorics, graph theory, recursion)		Q	G	A
1. Mathematical structures (e.g., vector spaces; groups, rings, fields)	Ð	Q	G	9
m. Calculus	Ð	Q	G	P
n. Technology (calculators, computers) in support of mathematics	Ð	Q	G	Q

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13. Within the arena of mathematical processes, many teachers feel better prepared to guide and help develop student learning in some domains than others. How well prepared do you feel to provide guidance in the following, at the grade levels you teach? (Darken one oval on each line.)

Adequately Prepared	Somewhat Prepared	Well Prepared	Well Prepared
Ģ	Ģ	Ģ	Ģ
Ģ	Q	Q	φ
Ģ	Q	Q	9
r			
Ģ	Q	Q	\bigcirc
Ģ	Ģ	Ģ	Ģ
	Adequately Prepared	Adequately Somewhat Prepared Prepared	Adequately Somewhat Well Prepared Prepared Prepared Q Q Q Q Q Q Q Prepared Prepared Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q

14.	Please indicate how well prepared you feel to do each of the following. (Darken one oval on each line.)	Not Adequately Prepared	Somewhat Prepared	Fairly Well Prepared	Very Well Prepared
	a. Lead a class of students using investigative strategies.	Ģ	Ģ	Ģ	Ģ
	b. Manage a class of students engaged in hands-on/project-based	Ģ	Q	Ģ	Q
	work.	Ģ	Q	Ģ	Q
	c. Help students take responsibility for their own learning.	Ģ	Q	Ģ	Q
	d. Recognize and respond to student diversity.	Ģ	Q	Ģ	Ģ
	e. Encourage students' interest in mathematics.				
	f. Use strategies that specifically encourage participation of females	Ģ	Q	Ģ	Q
	and minorities in mathematics.	Ģ	Q	Ģ	Q

g. Involve parents in the mathematics education of their students.

15.	Please rate the effect of each of the following on your mathematics instruction. (Darken one oval on each line.)	Inhibits Effective Instruction			utral Iixed		Encourages Effective Instruction	Don't
	a. State and/or district curriculum frameworks.	Ģ	Q	C	ç	\mathbf{Q}	Ģ	NR
	b. State and/or district testing policies and practices.	Ģ	Q	(ç	\mathbf{Q}	Ģ	NR
	c. Counseling department policies and practices.	φ	Ģ	(چ ٩	φ	Ģ	NR
	d. College placement tests.	Ģ	Ģ	(Ş	φ	Ģ	NR
	e. Quality of available instructional materials.	Ģ	Ģ	(<u>چ</u>	\mathbf{Q}	Ģ	NR
	f. Access to calculators for mathematics instruction.	Ģ	Ģ	(Ð	Ģ	Ģ	NR
	g. Access to computers for mathematics instruction.	1	2	(3	4	(5)	NR
	h. Funds for purchasing equipment and supplies for mathematics	s. 📿	Ģ	(Ð	\mathbf{Q}	Ģ	NR
	i. System of managing instructional resources at the district or school level.	Ģ	Ģ	C	چ ٩	Ģ	Ģ	R
	j. Time available for teachers to plan and prepare lessons.	Ģ	Ģ		ۍ ٩	Ģ	Ģ	NR
	k. Time available for teachers to work with other teachers.	Ģ	Ģ	(Ð	\mathbf{Q}	Ģ	NR
	1. Time available for teacher professional development.	Ģ	Ģ	(ş	\mathbf{Q}	Ģ	NR
	m. Importance that the school places on mathematics.	Ģ	Q	C	ç	\mathbf{Q}	Ģ	NR
	n. Consistency of mathematics reform efforts with other school/district reforms.	Ģ	Ģ	C	چ چ	Q	Ģ	
	o. Public attitudes toward reform.	Ģ	Ģ		ۍ ج	Ģ	Ģ	NA
16.	How many of your students' parents do each of the following? (Darken one oval on each line.)		None	A Few		About 1/2	А	lmost All
	a. Volunteer to assist with class activities.		Ģ	Ģ	Ģ	Ģ	\mathbf{Q}	Ģ
	b. Donate money or materials for classroom instruction.		Ģ	Ģ	Ģ	Ģ	\mathbf{Q}	Ģ
	c. Attend parent-teacher conferences.		Ģ	Ģ	Ģ	Ģ	\mathbf{Q}	Ģ
	d. Attend school activities such as PTA meetings and Family Mathematics nights.		Ģ	Ģ	Ģ	Ģ	Ģ	Ģ
	e. Voice support for the use of an investigative approach to		Ť		-	Ŭ	-	

mathematics instruction.

f. Voice support for traditional approaches to mathematics instruction.

C. Your Mathematics Teaching

59

- 17. Which of the following are you currently teaching? (Darken each oval that applies.)
- Middle school mathematics
- High school mathematics

Questions 18-20 ask about your mathematics teaching. Please answer for your first middle/high school mathematics class of the day.

What grade level is this class? (Darken one oval.)		O High school mathematics				
About how often do you do each of the following in your mainstruction in this class? (Darken one oval on each line.)	thematics	Rarely (e.g., a few times a year)	Sometimes (e.g., once or twice a month)	Often (e.g., once or twice a week)	All or almost all mathe- matics lessons	
a. Use the LSC-designated instructional materials (see cover		• /	,	,		
of mathematics lessons.	1	2	3	4	5	
b. Introduce content through formal presentations.	1	2	3	4	5	
c. Arrange seating to facilitate student discussion.	1	2	3	4	5	
d. Use open-ended questions.	1	2	3	4	5	
e. Require students to explain their reasoning when giving an		2	3	4	5	
f. Encourage students to communicate mathematically.	1	2	3	4	5	
g. Encourage students to explore alternative methods for solu		2	3	4	5	
h. Encourage students to use multiple representations (e.g., n						
geometric, etc.).	1	2	3	4	5	
i. Allow students to work at their own pace.	1	2	3	4	5	
j. Help students see connections between mathematics and o	ther disciplines. ①	2	3	4	5	
k. Use assessment to find out what students know before or d	luring a unit. 🛛 🕚	2	3	4	5	
1. Embed assessment in regular class activities.	1	2	3	4	5	
m. Assign mathematics homework.	1	2	3	4	5	
 Read and comment on the reflections students have written or journals. 	n in their notebooks	2	3	4	5	
the following types of activities as part of their mathematics instruction? (Darken one oval on each line.)	Never	few times a year)	once or twice a month)	once or twice a week)	mathe- matics lessons	
a. Participate in student-led discussions.	1	2	3	4	5	
b. Participate in discussions with the teacher to further mathe						
understanding.	0	2	3	4	5	
c. Work in cooperative learning groups.	0	2	3	4	5	
d. Make formal presentations to the class.	0	2	3	4	5	
e. Read from a mathematics textbook in class.	1	2	3	4	5	
f. Read other (non-textbook) mathematics-related materials i		2	3	4	5	
g. Practice routine computations/algorithms.	1	2	3	4	5	
h. Review homework/worksheet assignments.	1	2	3	4	5	
i. Use mathematical concepts to interpret and solve word pro		2	3	4	5	
j. Work on solving a real-world problem.	1	2	3	4	5	
k. Share ideas or solve problems with each other in small gro		2	3	4	5	
1. Engage in hands-on mathematical activities.	1	2	3	4	5	
m. Play mathematics games.	1	2	3	4	5	
n. Follow specific instructions in an activity or investigation.		2	3	4	5	
o. Design or implement their <i>own</i> investigation.	1	2	3	4	5	
p. Work on models or simulations.	1	2	3	4	5	
q. Work on extended mathematics investigations or projects	(
1 C 1 5	•				_	
q. work on extended mathematics investigations of projects more in duration).r. Participate in field work.	a week or	2	3	4	(5)	

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20.	(continued)		Never	Rarely (e.g., a few times a year)	Sometimes (e.g., once or twice a month)	Often (e.g., once or twice a week)	All or almost all mathematics lessons
	s. Record, represent and/or analyze data.		1	2	3	4	5
	t. Write a description of a plan, procedure	or problem-solving process.	1	2	3	4	5
	u. Write reflections in a notebook or journa	al.	1	2	3	4	5
	v. Use calculators or computers for learnin	g or practicing skills.	1	2	3	4	5
	w. Use calculators or computers to develop	conceptual understanding.	1	2	3	4	5
	x. Use calculators or computers as a tool (e	e.g., spreadsheets, data					
	analysis).		1	2	3	4	5
	y. Work on portfolios.		1	2	3	4	5
	z. Take short-answer tests (e.g., multiple c	hoice, true/false,					
	fill-in-the-blank).		1	2	3	4	5
	aa. Take tests requiring open-ended response	ses (e.g., descriptions,					
	justifications of solutions).		1	2	3	4	5
	bb. Engage in performance tasks for assessr	ment purposes.	1	2	3	4	5

D. LSC Professional Development

Questions 21-27 refer to the NSF-supported Local Systemic Change (LSC) program. Please refer to the cover letter accompanying this questionnaire for information about the LSC project activities and designated materials in your district. If you have not yet participated in LSC professional development, darken this oval O and skip to Question 26.

^{21.} To what extent is each of the following true of LSC mathematics-related professional development in your district? (Darken one oval on each line.)

	Not at all				To a great extent
a. I am involved in planning my mathematics-related professional					
development.	1	2	3	4	5
b. I am encouraged to develop an individual professional development plan					
to address my needs and interests related to mathematics education.	1	2	3	4	5
c. I am given time to work with other teachers as part of my professional					
development.	1	2	3	4	5
d. I am given time to reflect on what I've learned and how to apply it to the					
classroom.	1	2	3	4	5
e. I receive support as I try to implement what I've learned.	1	2	3	4	5

7 or

22. Approximately how many *total hours* have you spent on formal, LSC-provided professional development in mathematics/mathematics education *since the LSC project began*? (Darken one oval.)

0	0	\bigcirc	10-19	\bigcirc	40-59	\bigcirc	80-99	\bigcirc	130-159	\bigcirc	200 or greater
\bigcirc	1-9	\bigcirc	20-39	\bigcirc	60-79	\bigcirc	100-129	\bigcirc	160-199		

23. Please indicate the number of times you have participated in each of the following activities **during this school year**. (Darken one oval on each line.)

(0	1-2	3-4	5-6	more
a. Participated in an LSC academic year study group/discussion group.	1	2	3	4	5
b. Was "coached" on my teaching by an LSC teacher leader/staff person based					
on a classroom observation.	1	2	3	4	5
c. Received assistance from an LSC "teacher leader" in my school.	1	2	3	4	5
d. Received assistance from an LSC staff person in my district.	1	2	3	4	5
e. Received assistance from an LSC-designated mathematician/mathematics					
educator from a college/university/museum/industry.	1	2	3	4	5
f. Read messages in a Listserv discussion sponsored by the LSC.	1	2	3	4	5
g. Posted messages to a Listserv discussion sponsored by the LSC.	1	2	3	4	5

Very Poor		Poor	Fair	Good	Very Good	Excellent				
\bigcirc		0	0	0	0	0				
. То	1	ant has nort:	aination in T.C	C moth smatters						
				C mathematics- one oval on eac		Not at all				To a great exten
a. 1	Mathema	atics content	knowledge.			1	2	3	4	5
b.	Understa	nding of ho	w children thin	nk about/learn m	athematics.	1	2	3	4	5
c	Ability to	o implement	high-quality r	nathematics inst	ructional materia	ıls. 🛈	2	3	4	5
				ou currently teac terials? (Darken	hing that use the		ignated	by your I	.SC (see	e cover
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Thank you very much for participating in this survey!

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