

**A Longitudinal/Cross-Sectional Study of the Impact of *Mathematics in Context*
on Student Mathematical Performance**

Teacher Questionnaire: Professional Opportunities
(Working Paper #11)

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Teacher Questionnaire IV: Professional Opportunities

The purpose of Teacher Questionnaire IV was to gather information on teachers' professional development opportunities. Questionnaire items were adapted from the Center on Organization and Restructuring of Schools (1996) and National Center for Improving Student Learning & Achievement in Mathematics & Science (1997).

In the initial part of the questionnaire, the teacher listed local information, including the school name and address. In Item 1, the teacher indicated the professional literature he/she read from a list of seven items including district and state mathematics frameworks, the NCTM *Standards* documents (1989, 1991, 1995), NCTM journals, and other professional journals. In the second item, the teacher circled the frequency of opportunities to observe and discuss another teacher's teaching; have another teacher observe his/her own teaching; receive feedback on his/her own teaching; and participate in a network of teachers outside of school. In Item 3, the teacher circled the frequency of participation in formal meetings with other mathematics teachers with respect to curriculum, methods, classroom assessment, and evaluation of the mathematics program. In Item 4, the teacher circled the number of college/university courses taken in the past 12-month period.

In Item 5, the teacher described the topics addressed during professional development opportunities through his/her reaction to seven topics. If a particular topic was addressed, the teacher indicated whether the professional development did lead to changes in his/her teaching of mathematics on a 4-point Likert scale that included "strongly disagree," "disagree," "agree," and "strongly agree." If the teacher responded "agree" or "strongly agree," he/she then indicated whether the change was effective in facilitating/enhancing student learning. These ratings were on a continuum from "not effective" to "very effective." In Item 6, the teacher circled the type of support he/she received for attending professional development, including meetings, workshops, and conferences. The choices were release time from teaching, paid expenses, honorarium, continuing education units, none, and other (with a request for description).

In Items 7-10, the teacher described the length, frequency, context, and content of typical formal and informal meetings or planning sessions with other mathematics teachers. In Item 7, the teacher indicated the time reserved for planning daily and weekly during one contractual work week. In Item 8, the teacher indicated the number of days in which he/she spent at least 15 minutes collaborating with other mathematics teachers. In Item 9, the teacher circled the setting in which such planning occurred. In Item 10, the teacher indicated the frequency in which he/she participated in discussions that were characterized in 13 statements. These included instructional materials and activities, instructional methods, assessments, student difficulties, scheduling events or projects, sharing stories about classroom experiences, and discussing professional literature. The teacher circled his/her participation as "never," "sometimes," "frequently," or "always."

In Item 11, the teacher supplied an estimate of the percent of mathematics teachers in the school that were involved in efforts to improve the mathematics program. In Item 12, the teacher characterized his/her own efforts to improve the mathematics program by circling one of the following: "strong opposition," "slight opposition," "slight support," or "strong support."

For the spring administration of this questionnaire, an additional item was included. In Item 13, the teacher circled the specific *Mathematics in Context* units taught during the current school year from a list of all 40 *Mathematics in Context* units listed by grade level.

Teachers completed the questionnaire in the fall of the first year of their participation in the study and in the spring of each year of their participation. For the fall administration, teachers in Districts 1 and 2 completed the questionnaire during the professional development institutes provided by the research team in the August prior to the school year. Each teacher received an honorarium for participating in the August institutes. Teachers in Districts 3 and 4, and teachers in Districts 1 and 2 who did not attend the institutes, completed the

questionnaire (along with other teacher questionnaires) at times that were convenient for the them and that did not interfere with classroom instruction, such as during their planning time or before or after school. These teachers received an honorarium of \$50 upon receipt of all questionnaires at the research center. For the spring administration in the first and second study years, teachers in all districts completed the questionnaire (along with another questionnaire) during the spring professional development institutes provided by the research team. In the spring of the third study year, teachers in Districts 1, 2, and 4 completed the questionnaire during the spring professional development institutes. Teachers received release time to participate in the spring institutes. Teachers who did not attend the institutes completed the questionnaire (along with another teacher questionnaire) at times that were convenient for them and that did not interfere with classroom instruction. These teachers received an honorarium of \$50 upon receipt of all questionnaires at the research center. Ninety-six percent of the teachers completed questionnaires.

References

Center on Organization and Restructuring of Schools. (1996). *Teacher questionnaire*. Madison, WI: University of Wisconsin–Madison.

National Center for Improving Student Learning & Achievement in Mathematics & Science. (1997). *Elementary school teacher questionnaire*. Madison, WI: University of Wisconsin–Madison.

National Council of Teachers of Mathematics. (1989). *Curriculum and evaluation standards for school mathematics*. Reston, VA: Author.

National Council of Teachers of Mathematics. (1991). *Professional standards for teaching mathematics*. Reston, VA: Author.

National Council of Teachers of Mathematics. (1995). *Assessment standards for school mathematics*. Reston, VA: Author.



Teacher Questionnaire IV: Professional Opportunities

Thank you for completing this questionnaire. Your responses will enable the staff of the *Mathematics in Context* longitudinal study to learn more about opportunities for professional development in your school and your participation in professional activities.

Your responses will be kept confidential. Your responses will not be used to evaluate you in any way, and your name will not be mentioned in reports of this research. The information on this sheet will help us ensure that a questionnaire was received from each teacher in the study.

We hope that you will answer every question, but you may skip any questions you do not wish to answer. When you have completed the questionnaire, please look over your responses to see that you have not skipped anything unintentionally.

Last name

First name

MI

District

School

City

State

Zip Code

1. Which of the following have you read? (Circle all that apply)
- a. Your school district mathematics framework or curriculum guide 1
 - b. Your state mathematics framework or curriculum guide 2
 - c. *Curriculum and Evaluation Standards for School Mathematics* published by the National Council of Teachers of Mathematics (1989) 3
 - d. *Professional Standards for Teaching Mathematics* published by the National Council of Teachers of Mathematics (1991) 4
 - e. *Assessment Standards for School Mathematics* published by the National Council of Teachers of Mathematics (1995) 5
 - f. Journals specifically related to mathematics teaching and learning such as *Teaching Children Mathematics* (formerly *Arithmetic Teacher*), *Mathematics Teaching in the Middle School*, and *Mathematics Teacher* 6
 - g. Journals related to teaching and learning in the elementary and middle school that are not specifically targeted for mathematics 7

2. During the last school year, how often did you do the following? (Circle one response for each statement)

	Number of Times					
	0	1	2	3-4	5-9	10+
a. Visit another teacher's classroom to observe and discuss his/her mathematics teaching						
b. Have another teacher observe your mathematics teaching						
c. Receive meaningful feedback on your mathematics teaching from peers or supervisors						
d. Participate in a group or network with other mathematics teachers outside of your school						

3. During the last school year, how often did you participate in formal meetings (e.g., department meetings) with other mathematics teachers in your school related to the following discussions? (Circle one for each statement)

	Number of Times					
	0	1	2	3-4	5-9	10+
a. The mathematics curriculum	0	1	2	3-4	5-9	10+
b. Mathematics teaching techniques and student activities	0	1	2	3-4	5-9	10+
c. Ideas for assessing student learning of mathematics	0	1	2	3-4	5-9	10+
d. Evaluation of your mathematics program	0	1	2	3-4	5-9	10+

4. During the past 12 months, how many college or university courses did you take? (Circle one)

0 1 2 3 4 more than 4

5. Answer the following questions for each topic in the left column:

1. Have you participated in professional development activities during the past 12 months that have addressed that topic? If yes, please answer question 2.
2. Did that professional development activity lead to changes in your teaching of mathematics? If you agree or strongly agree, please answer question 3.
3. Did the changes in your teaching enhance your students' learning?

	1. My professional development activities addressed this topic		2. My professional development on this topic led to changes in my teaching of mathematics				3. The changes inspired by this professional development activity were effective in facilitating/enhancing student learning.			
	yes	no	strongly disagree	disagree	agree	strongly agree	not effective	7	8	9
a. Core ideas of mathematics	1	2	3	4	5	6	7	8	9	10
b. Techniques of classroom discourse	1	2	3	4	5	6	7	8	9	10
c. Direct instruction	1	2	3	4	5	6	7	8	9	10
d. Student reasoning	1	2	3	4	5	6	7	8	9	10
e. Using on-going assessment to guide instruction	1	2	3	4	5	6	7	8	9	10

1. My professional 2. My professional 3. The changes inspired by

	development activities addressed this topic		development on this topic led to changes in my teaching of mathematics				this professional development activity were effective in facilitating/enhancing student learning.			
	1	2	3	4	5	6	7	8	9	10
f. Basing instructional practices on student knowledge										
g. <i>Mathematics in Context</i>										

6. What type of support did you receive for attending professional development meetings, workshops, and conferences? (Circle all that apply)

- | | | | |
|----------------------------|---|----------------------------|---|
| Release time from teaching | 1 | Continuing Education Units | 4 |
| Paid travel expenses | 2 | None | 5 |
| Honorarium | 3 | Other (Please specify) | |

7. During the contracted school week, how much planning time do you typically have?

- a. _____ minutes/day
- b. _____ minutes/week

8. How often do you spend at least 15 minutes (in formal or informal sessions) planning mathematics lessons, activities, assessments, etc, with other mathematics teachers? (Circle one)

Number of days: 0 <1 1-3 4-6 > 6

9. When you plan mathematics lessons, activities, assessments, etc, with other mathematics teachers, when does this collaboration take place? (Circle one)

- | | |
|---------------------------------|---|
| Does not apply | 1 |
| During formal meetings | 2 |
| During contracted planning time | 3 |
| After school on your own time | 4 |

10. In a typical formal and informal meeting or planning session with other mathematics teachers, indicate the number of times you participated in each of the following types of discussion. (Circle one response for each statement)

	Never	Sometimes	Frequently	
Always				
a. Decisions about concepts to be emphasized in instruction, guiding instruction, obtaining materials, or including related activities	1	2	3	4
b. Teaching materials and activities	1	2	3	4
c. Specific teaching techniques	1	2	3	4
d. Assessment procedures that reveal how students understand mathematics	1	2	3	4
e. Problems with specific students and arrangement of appropriate help for them		1	2	3
4				
f. Individual preparation of lessons, tests, or grades	1	2	3	4
g. Develop course goals or objectives for mathematics	1	2	3	4
h. Scheduling, student grouping, or planning group events or projects	1	2	3	4
i. Sharing ideas about mathematics that are interesting to you as an adult	1	2	3	4
j. Sharing stories about teaching experiences in mathematics	1	2	3	4
k. Discussing something you have read from professional literature about mathematics	1	2	3	4
l. Parent issues	1	2	3	4
m. Other typical activity. Please describe.	1	2	3	4

11. About what percent of the mathematics teachers at your school are involved in efforts to improve the mathematics program? _____%

12. In general, how would you characterize your efforts to improve the mathematics program at your school? (Circle one)

Strong opposition	Slight opposition	Slight support	Strong support
1	2	3	4

13. Which the following *Mathematics in Context* units have you taught in the **current** school year? (Circle all that apply.)

Side Seeing	1	Reallotment	11
Figuring All the Angles	2	Made to Measure	12
Some of the Parts	3	Fraction Times	13
Measure for Measure	4	More or Less	14
Per Sense	5	Ratios and Rates (Smooth Operators)	15
Grasping Sizes	6	Expressions and Formulas	16
Patterns and Symbol	7	Tracking Graphs (Functions of Time)	17
Dry and Wet Numbers	8	Comparing Quantities	18
Picturing Numbers	9	Operations	19
Take a Chance	10	Dealing with Data	20
Packages and Polygons	21	Triangles and Patchwork	31
Ways to Go	22	Digging Numbers	32
Triangles and Beyond	23	Going the Distance	33
Looking at an Angle	24	Reflections on Number	34
Cereal Numbers	25	Graphing Equations	35
Powers of Ten	26	Growth	36
Ups and Downs	27	Get the Most Out of It	37
Building Formulas	28	Patterns and Figures	38
Decision Making	29	Insights into Data	39
Statistics & the Environment	30	Great Expectations	40