

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

Teacher Interview: Instructional Planning and Classroom Interaction
(Working Paper #3)

Mary C. Shafer, Jon Davis, and Lesley R. Wagner

Wisconsin Center for Education Research
University of Wisconsin–Madison

Shafer, M. C., Davis, J., & Wagner, L. R. (1998). *Teacher interview: Instructional planning and classroom interaction (Mathematics in Context Longitudinal/Cross-Sectional Study Working Paper No. 3)*. Madison, WI: University of Wisconsin–Madison.

The development of this instrument was supported in part by the National Science Foundation #REC-9553889.

Description of Teacher Interview on Instructional Planning and Classroom Interaction

The teacher interview on instructional planning and classroom interaction was the primary instrument used to gather information about the considerations teachers made when planning for teaching instructional units and individual lessons prior to instruction. The interview also gathered data on particular aspects of classroom interaction and differences between teaching MiC and teaching conventional mathematics curricula.

The interview was composed of five questions, one of which was reserved for teachers who used MiC. A list of probing questions accompanied each interview question. The probing questions were designed to enhance both the breadth and depth of teacher responses and to ensure consistency of the data gathered from all study teachers. Two interview questions included additional probes that compared MiC and conventional curricula with respect to instructional planning and the nature of student conversations. A brief introductory statement to the teacher provided a description of the interview, assurance that there were no right or wrong answers to interview questions, and notification that the interview would be audiotaped.

The first interview question asked teachers about their planning for each mathematics unit/chapter. The probes provided specific attention to (a) whether the teacher planned with others; (b) the considerations given in planning at the unit level, specifically, students' prior knowledge, textbook scope and sequence, district curriculum guidelines; state standards; district or state standardized tests; and other resources; and (c) setting the pace for instruction. An additional probe was reserved for teachers who used MiC. The focus was comparison of planning to teach MiC with planning to teach other mathematics textbooks used in the past.

The second interview question was dedicated to planning individual lessons. Probing questions provided attention to (a) considerations of students' performance in the previous lesson; and (b) whether the teacher solved unit/chapter problems or exercises before teaching, and, if so, the effect this preparation had on teaching the lesson.

The third interview question was designed to collect information on classroom interaction. In particular, the question addressed the issue of what counts as an acceptable answer. Related probes were (a) how students determine if their answers are acceptable; and (b) how the teacher determines if a student's answer is acceptable. The third probe elicited information about the ways in which students contribute to classroom discussions. A fourth probe was reserved for teachers who used MiC. The focus was differences in student participation when using MiC in comparison to student participation when using conventional mathematics curricula in the past. Probes for this question provided attention to differences in the types of conversation generated with each type of curriculum such as student conjectures, answers, and explanations.

The fourth interview question focused on the value of students working in small groups. Probing questions centered on (a) times when working in small groups was useful; (b) planning for small-group instruction; and (c) the ways grouping varied for different instructional purposes.

An additional interview question was reserved for teachers using MiC. This question focused on the ways that teaching MiC was different from teaching conventional mathematics curricula in the past for the students and the teacher. Probes provided attention to advantages and disadvantages of teaching MiC and difficulties in implementing MiC.

The interview protocol for instructional planning and classroom interaction was used during the spring semester of each study year. The interviews with teachers in Districts 1 and 2 were conducted by the on-site observer in each district. Audiotaped interviews were promptly sent to the research center. Interviews with teachers in Districts 3 and 4 were conducted via telephone by the project director or a project assistant at the research center. The interviews were conducted at times that were convenient for the teacher and that did not interfere with classroom instruction such as during the teachers' planning time or before or after school. The interviews varied from 20-30 minutes, depending on teacher responses and the need to use probing questions. Interviewers were instructed to follow particular procedures, including asking probing questions and interjecting nonjudgmental comments when appropriate (see Instructions for Interviews in this appendix). Teachers received an honorarium of \$25 per interview. Interviews were transcribed for analysis. All teachers in Districts 1 and 2 completed the interview on instructional planning and classroom interaction. One teacher in each of Districts 3 and 4 did not complete the interview. The combined completion rate for teachers in all four districts in 1997-1998 was 98%.

Teacher Interview Protocol: Instructional Planning and Classroom Interaction

Instructions for Interviewer

1. Be sure that you and the principal/teacher are alone and in a quiet room where responses can be recorded. Be sure that the tape is labeled with the principal/teacher's full name and the date of the interview.
2. Remember to follow the written protocol faithfully. You should always probe once if you think that the principal/teacher has not answered the question asked. In most cases, probes are given. In other cases, you may use one of the following.
 - Anything else?
 - Can you tell me more about ()?
 - Rephrase the question.
3. In responding to some questions, the principal/teacher may describe one aspect of the question in depth while not addressing the breadth of the question. Probes are provided to assist you in eliciting a broad response to each question. As you listen to the person's responses, glance at the list of probes and use the probe(s) that will give a more complete answer to the question. You might say, for example, "What about (probe)?" or "How important is (probe)?"
3. If the principal/teacher has already answered a question you are about to ask, you should say: "The next question is (). I think you have already answered it. Do you think you have answered it? Is there anything else you want to add?"
4. Your responses to the principal/teacher's statements should be non-committal and non-judgmental. Use responses such as "Thanks," "That's fine," "Alright," and "Okay."
5. If you forget to ask a question, make sure that you go back and ask it even if it is out of order.
6. Thank the principal/teacher for his/her time.

Instructions adapted from:

Fennema, E., Carpenter, T., & Loef, M. (1990). *Belief Interview: CGI-2*. Madison, WI: University of Wisconsin-Madison.

Teacher Interview Protocol: Instructional Planning and Classroom Interaction

Turn on the tape recorder and record the following:

This is (your first and last names). I am interviewing (teacher's first and last names) who teaches () grade at (school name). Today is (month, date, year).

Say to teacher:

I will be asking you questions about how you decide what mathematics students should know and how you plan for your teaching. I am also interested in how you monitor student learning and how students contribute to classroom discussions. Please answer the following questions as truthfully as possible. There are no right or wrong answers to these questions. I am only interested in your opinions and ideas. Your responses will be audiotaped.

1. In general, how do you plan for each mathematics unit/chapter that you teach?
 - A. With whom do you plan?
 - B. Which of these do you take into consideration in your planning? Explain how.
 1. Students' prior knowledge
 2. Textbook scope and sequence
 3. District curriculum scope and sequence
 4. State standards
 5. District tests or other large-scale testing
 6. Other resources
 - C. How do you set the pace for instruction?
 - D. **For MiC teachers:**
How does your *planning* for teaching MiC compare with your planning for other mathematics textbooks you have used?

2. How do you plan for *individual* lessons?
 - A. What considerations do you give in your planning to how students performed in previous lessons?
 - B. Do you work through the problems in the unit/chapter before teaching? How does this affect how you teach the lessons?

3. What counts as an acceptable answer?
 - A. How do students determine if their answers are acceptable?
 - B. How do you determine if a student's answer is acceptable?
 - C. In what ways do students contribute to whole class discussions?
 - D. **For MiC teachers:**
In comparison to other mathematics curricula you have used, how does student participation in discussions differ when using MiC?
 1. **Type of answers and explanations**
 2. **Type of conversation (e.g., conjectures, support for their reasoning)**

4. Do you think it is valuable for students to work in small groups? Why?
 - A. When is working in small groups useful?
 - B. How do you plan for small group instruction?
 - C. What type of grouping have you found to be the best for you and your students in terms of instruction (e.g., individual, occasional small groups, small groups that change over time, large group, etc.)?

5. **For MiC teachers:**
How is *teaching* MiC different than other mathematics curricula you have used?
 - A. **For the students?**
 - B. **For you as the teacher?**
 - C. **What advantages do you see in teaching the MiC curriculum?**
 - D. **Do you see any disadvantages in using this curriculum?**
 - E. **Have you encountered any difficulties implementing this curriculum?**