

**Michigan Middle School Mathematics Reform Project (M³RP)
2000-2001 Evaluation School Site Visits**

**SUMMARY OF INTERVIEW RESPONSES:
PRINCIPALS, LEAD CONTACTS,
and TEACHER LEADERS**

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□ Background. The Michigan Middle Schools Mathematics Reform Project (M³RP) is a four-year collaborative effort designed to assist Michigan school districts in aligning their middle school mathematics curriculum and instruction with the Michigan Curriculum Framework in Mathematics and other professional recommendations. There were 90 school districts (or consortia of districts) involved in the project in June 2001. This includes 147 schools. Each participating school has a District Leadership Team made up of teachers, administrators, and community members that is responsible for facilitating the mathematics improvement effort in their school/district. DLT members attend two regional meetings each school year. In addition, Teacher Leaders attend two school year professional development sessions.

The evaluation of M³RP includes gathering a variety of information from District Leadership Teams and Teacher Leaders over the course of the project. Between October 2000 and May 2001, members of the M³RP Evaluation Team made visits to participating schools. These visits included conducting interviews with principals, lead contacts, and teacher leaders. Site visit team members also observed lessons conducted by teacher leaders (a separate report presents findings from observations). This report is a summary of interview responses from principals, lead contacts (if different from the principal), and teacher leaders.

□ Study Methods and Sample. Evaluators prepared interview protocols for use with principals, lead contacts, and teacher leaders. Site visit schedules were arranged. Interviews lasted 20-40 minutes. Schools in 61 of the 90 participating districts were visited. Interviews were conducted with 68 principals (or other building administrators), 55 lead contacts (curriculum directors, assistant principals, etc.), and 128 teacher leaders.

Summary of Findings

□ Principals. Principals were asked why their school decided to participate in M³RP. There were 32 different categories of answers. Eleven percent said they wanted to improve MEAP scores; 11% said they were planning to choose new instructional materials; 9% wanted to help teachers improve their mathematics skills and knowledge; 9% said they wanted their school to stay current with trends in mathematics education; 6% wanted to use the opportunity to provide professional development for their teachers; 5.5% were not satisfied with their current mathematics program; 5.5% said they wanted to make improvements in their mathematics program; and 4.5% wanted to find a way to better meet the needs of their students. Other reasons (one or two responses each) included: improve student critical thinking skills; wanted a mathematics program that focused on real-world situations; wanted to expose teachers to new mathematics materials; align mathematics curriculum K-12; to motivate teachers; and fill in gaps in the middle school mathematics program. Three principals said their school had to participate in the program; one said it was the result of parental encouragement.

• Asked about their expectations for participation in the program and whether they were met or not, principals said the following: 42 principals indicated their expectations had been met so far; 3 said they were not yet met; and 13 said they didn't have any preconceived expectations. Among those whose expectations had been met, they identified the following:

- Quality professional development provided--consistent, organized, easy to understand and apply (28%)

- Learning about the various NSF-supported mathematics programs (20%)
- Opportunity to network (17.5%)
- Exposure to new approaches to mathematics teaching and learning (10%)
- Received up-to-date research and best practice information (8%)
- Development of plans to improve mathematics program (5%)
- Received materials to teach mathematics lessons (3%)
- Other responses (1 each) included: improve staff relations, technology to support mathematics learning, modeling of a good mathematics program, and motivating teachers to improve their mathematics program

• Principals were asked about their role in supporting mathematics improvement activities. Responses included:

- Encourage teacher participation and support them in this work (27%)
- Coordinate/facilitate teacher participation in professional development (such as providing release time, facilities, etc.) (21.5%)
- Provide instructional resources (printed materials, manipulatives, calculators) (13%)
- Attend meetings and professional development sessions with teachers to be informed about the improvement effort (8%)
- Be involved in planning for the improvement effort (5.5%)
- Public relations, liaison with parents/community/school board (4%)
- Coordinate activities with district curriculum director (4%)
- Facilitate project paperwork (2.5%)
- Four principals said they had no direct contact with teacher leaders; one said, "teachers are the experts . . . this is a team effort and I rely on their expertise."
- One indicated his role was to monitor teacher participation in the project

• Asked about their role on the District Leadership Team, principals said the following:

- Encourage teacher leaders and support their work (20%)
- Provide substitutes for teacher leaders and make time available for them to do their work (19.5%)
- Attend DLT meetings and keep informed about the project (16%)
- Provide funds and materials as needed (8%)
- Listen to needs and share ideas (7%)
- Liaison with central administration and curriculum coordinators (6.5%)
- No direct involvement (5%)
- Attend professional development sessions (3%)
- Lead the DLT (1.5%)
- Other responses (1 each) included: guide teacher leaders, organize paperwork, inform community members, administrative representative

• DLTs developed a multi-year plan for improving their middle school mathematics program. Principals were asked if the implementation of the plan was on schedule. Seventy-eight percent said yes; 8% said it was in process, 6% were not sure about status of plan, and 6% said plan was not on schedule or behind schedule.

• Principals were asked to identify strengths/supports in their school for improving their mathematics program. Responses were:

- Staff supportive of reform; willingness of school and staff to look into new mathematics programs (48%)
- Strong teamwork (7.5%)
- Adequate instructional resources (printed materials, calculators, etc.) (9%)
- Supportive administration (7%)
- District M³RP Coordinator and Teacher Leaders (5.5%)
- Plan for improvement (5%)
- Good professional development (3.5%)
- Supportive parents (3.5%)
- Certified mathematics teachers (3.5%)

- Asked to identify barriers and weaknesses, responses were:
 - Not enough time to implement the change, in part affected by lack of substitutes (34%)
 - Inadequate financial resources to implement the change (17%)
 - Reluctant/recalcitrant teachers (13.5%)
 - Convincing the community/school board it is OK to change (6.5%)
 - Inadequate parent support/understanding of the reform effort (5%)
 - Change happening too fast (4%)
 - Lack of adequate technology to support the program (2.5%)
 - Other responses (1 each) included: lack of dialog with high school, need for articulation across grades, overcrowded school, teachers with limited mathematics background, small school means no colleagues to share ideas with, teachers out of building too much.
- Principals were asked how the middle school mathematics improvement effort related to improvement at the elementary and/or high school level. Responses:
 - Trying to align curricula K-12 (18.5%)
 - Changes in middle school should influence changes in high school (9%)
 - High school still using traditional math program (9%)
 - Investigative elementary math program in place (12%)
 - Elementary receptive to new programs or planning for implementation (11%)
 - High school skeptical of reform programs (3%)
 - High school planning for change to new program (2%)

□ DLT Lead Contact. Lead contacts include curriculum coordinators, other central administrators, mathematics specialists, or other non-teaching staff.

- Lead contacts were asked why their school decided to participate in M³RP. Responses were:
 - Provide professional development for teachers (14%)
 - Improve MEAP test scores (14%)
 - In process of choosing new curriculum (11%)
 - School wanted to improve mathematics program (10%)
 - Wanted to learn about most up-to-date information about mathematics teaching (8%)
 - Looking for guidance in selected new textbooks (6%)
 - To improve teaching of mathematics (4%)
 - To learn about the NSF reform mathematics programs (4%)
 - Looking for outside support for K-12 alignment of mathematics (4%)
 - Other responses (1 or 2 each) included: expose teachers to new math materials, improve student critical thinking skills, learn about block scheduling, better prepare students for high school, urging of teachers, good experiences with WMU in the past.
- Asked about their expectations for participation and whether they were met, lead contacts said their expectations had been met regarding the following:
 - Valuable review of NSF reform projects (35%)
 - Excellent professional development (30%)
 - Learning new methods for classroom use (12.5%)
 - Up-to-date information about mathematics teaching and learning (7.5%)
 - Other expectations met (1 each): opportunity for networking, good information about constructivist learning, current MEAP information.
- Asked about implementation of their M³RP improvement plan, 48 (92%) are implementing as planned, 6% behind in implementation, and 2% have no plan.
- Lead contacts were asked what they found most useful about the DLT regional meetings so far. Responses included:
 - Opportunity to network (33%)
 - Self-assessment of school math program (14%)
 - Mathematics content and technology training (12%)

- Research findings for sharing in district (10%)
 - Being able to involve community and parents (7%)
 - Operating as a team (5%)
 - Setting goals and planning (2.5%)
 - Other responses (1 or 2 each): getting better informed about math programs, see reform ideas modeled, printed materials, use of TIMMS results.
- Asked about strengths and limitations of their DLTs, lead contacts said:
 - Strengths: Teamwork and collaboration across grade levels and with administrators and parents (40%); effective face-to-face and electronic communication (11%); previous experience of team members (8.5%); high quality PD offered by Teacher Leaders (8.5%); and release time for teachers (6%).
 - Limitations: Lack of time for planning for proper implementation (40%); weak DLT leadership (16%); resistant high school staff (10%); other (1 or 2 each)--staff turnover, inadequate money for materials, and declining interest in the reform effort.
- Contacts were asked how the M³RP work has affected mathematics improvement at the elementary and high school levels. Responses:
 - Elementary and high school actively participating in the project (10 responses)
 - Elementary has changed to a reform math series but no change at the high school (7 responses)
 - High school has changed to reform math series but no change at elementary (4 responses)
 - High school already using reform math program (2 responses)
- Asked what criteria was used for selecting teacher leaders, responses were:
 - Asked for volunteers (24%)
 - Teachers interested in reform took initiative (17%)
 - The only math teachers in the district (10%)
 - Selected by administration to participate (10%)
 - Teacher knowledgeable about mathematics (7%)
 - Teacher is department chair (5.5%)
 - Teacher respected by peers (5%)
 - Teacher plans to remain in district (5%).
- Lead contacts were asked if they had received any feedback from teachers about their participation in the DLT and TL experiences so far. Responses:
 - Useful: Good summer institute--materials, activities (36%); opportunity to network (14%); information on graphing calculators (8%); enthusiasm from TLs (5.5%); good content training (5.5%); teachers like networking within the district with colleagues (5.5%); other (1 each)--excellent instructors, increased communications among teachers in the district, reimbursement for their time is important.
 - Additional needs: Help to network with other districts with same curriculum (16%); help with parent/community relations (8%); help with meeting management and peer presentation (8%); more training on use of calculators (5.5%); other (1 each)--how to use 90-minute block schedule, more efficient Saturday meetings, more about how to engage all learners, more methods instruction, how to address teacher resistance.

□ Teacher Leaders. Teachers were asked why their district decided to participate in M³RP.

Responses were:

- Need to change curriculum (40%)
 - Looking for new textbooks (16%)
 - To receive professional development and training (12%)
 - To improve and influence MEAP test scores (12%)
- Asked why they became a Teacher Leader, responses were:
 - Expectation of the job (51%), including asked to do it, only math teacher at the grade level, assigned to the position, department head, no one else volunteers, drafted by administration, member of math curriculum committee.

- Opportunity to receive training (23%), including to become a better teacher, to receive training, learn new methods, develop math skills.
- Opportunity to review curriculum/textbooks and learn about new math program (14%)
- Chance to be involved in mathematics reform (18%), including to be involved with decisions, interested in reform, be part of the change process, passion for math, be part of the team.
- Volunteers to participate (9%); love of mathematics (5%); consider myself a leader (3%), for college credit (2%).

• Teachers were asked about the value of the DLT meetings. Responses:

- Most useful: opportunities to network (51%), technology training (24%), comparing curricula (9%), modeling of good professional development (5%), good content review (4%), reaffirmation of teacher beliefs about reform (2.5%)
- Least useful: content too deep for elementary teachers (23%), DLT meetings boring and waste of time for teachers (20%), pacing too slow (17%), hearing about other curricula after one has been chosen for district (14%), logic sessions (5.5%)
- Other needs: more about teaching/learning methods (4%)

• Teachers were asked about their beliefs about mathematics teaching and learning. Analysis of responses follows:

- Of the 115 responses to the question, 14 (12%) reported that their beliefs had changed as a result of participating in M³RP. These talked about how their classroom practice had changed and plans they have for doing things differently in their classrooms. Sample comments: "This program has allowed me to see what I need to do this summer to change. I have had so much input that I need the summer to digest and begin my change"; "I have started to use group work more and I try to use less teacher-centered lessons and more student-centered lessons"; and "I am not sure my beliefs have changed but my teaching has."
- 39% said their beliefs were essentially the same, although many said that M³RP had reinforced or supported existing ideas. Sample comments: "This program is in alignment with what I want to do. It has legitimized my techniques"; "This program has reinforced what I believe"; and "I have not really changed my beliefs, but the project has reinforced them."
- Thirty percent of teachers stated they believe that real world experience and/or hands-on approaches are key strategies for teaching mathematics. Teachers generally endorsed an investigative approach to learning. Examples of responses: "I believe students learn by doing and making their own connections to math and the real world. I try to help them make connections to what they know, have learned, and why they need to know this information in the future"; "I teach a lot of real world concepts so that students grasp the importance of math"; and "We do more activities that apply to real life and more hands-on activities."

• Teachers were asked if they conducted their mathematics any differently than in the past. The following changes were identified by the teachers.

- More small group work/cooperative learning (22%)
- More investigative approaches to learning (19%)
- Using reform mathematics text (15%)
- Doing more hands-on activities (13%)
- Acting more as a facilitator (10%)
- Doing more small group and whole group sharing and discussion (8%)
- Using more technology to support mathematics learning (8%)
- Using lessons and other materials distributed at M³RP sessions (8%)
- Using more constructivist methods (8%)
- Having students do more writing about mathematics (6%)
- Use more real-world applications (5%)
- Using more manipulatives (5%)
- Lessons more flexible and open-ended (3%)
- Lessons more student-centered (3%)
- Changed questioning strategies (3%)
- Other (1 or 2 each): integrating other subjects, changing amount of homework, using more wait time for students to answer questions, less emphasis on drill, using guest speakers, changing desk arrangements, using textbook less.

- No change (9%)
- No change, have always used investigative approaches (5%)

Sample comments about changes in lessons: "I now have new books to take lesson out of. Sometimes when I go back and look at the older books, I can't imagine teaching that way again"; "I am more of a facilitator now. I get input from the kids. I am using prior knowledge and past experiences to teach new concepts"; "I used to be traditional. Now I attempt to access prior knowledge, gain strategies from them, use group efforts, and be more of a guide rather than a leader"; "I have not used a lot of group work in the past and now I have started to work with the students in pairs. This seems to help them and I have noticed an increase of participation from them. They are not as afraid to share their answers as they were alone. I have enjoyed trying the new materials from last summer with my students. They have really started to grow"; "I have added a lot of group activities. I did not use many small groups to solve problems, now it just seems right that they use others to help them solve math problems. I guess I felt like it was cheating when groups solved problems but I have noticed that the students understanding of math concepts have actually deepened"; "Lessons are conducted differently in that students are writing and expected to explain their work. Everyday writing is incorporated into the math lesson and there is more group, individual and pairs of students working together"; "I have students write more than ever. They write explanations to their answers and they record many more things than they did in the past. I have used more graphs, charts, diagrams, and hands-on materials than ever. I have started to excite the students about math!"; "Doing lots more with the calculator; trying out CMP investigation lessons, using Excel spreadsheet with an ongoing stock market lesson; getting students to try more investigations, getting them to take more risks."

- Asked about successes and limitations in conducting professional development for their colleagues, responses included:

Successes:

- Discussions about curriculum, including trying out new lessons/activities (11 responses)
- Graphing calculator training (8 responses)
- Connected Mathematics training (4 responses)
- Modeling lessons provided through M³RP (2 responses)
- Learning trigonometry lessons (2 responses)
- Other (1 each): implementation of Math Thematics, modeling for integers, training in statistics, using technology, vocabulary to understand MEAP

Limitations:

- Teachers not willing to participate (24 responses)
- Not enough time for sessions (22 responses)
- Low attendance, poor participation (6 responses)
- Veteran teachers not confident of new teacher abilities (5 responses)
- Unclear what M³RP expects Teacher Leaders to do in the sessions (5 responses)
- Other (1 or 2 responses each): different grade levels have different needs, inadequate administrative support for sessions, focus of the group lost, difficult to stay on task, a lot of technology to learn.

- Teachers identified other ways that M³RP could be helpful to them. Ideas included:

- More technology training
- Assistance with school-based PD
- Help in choosing software
- Facilitating peer reviews
- Model investigative lessons
- Facilitate networking with other schools using same curriculum
- Assistance with lesson implementation
- Session on classroom management
- More grouping by grade level during training sessions
- Speakers to invite to school-based professional development sessions

