

EXCELLENT TURNOUT FOR OUTREACH CONFERENCE

More than 170 people attended MCTP's Outreach Conference on January 21, surpassing expectations and demonstrating a widespread interest in teacher preparation issues in Maryland. Educators and administrators at all levels throughout the state came to UMBC to hear about MCTP's efforts in "Changing Teaching and Teacher Preparation in Science and Mathematics," the conference theme.

"What was most impressive was that the conference brought together people from so many different groups," said MCTP evaluator Dr. Lois Williams, who coordinated the event. From school systems statewide came dozens of teachers, principals, mathematics and science curriculum supervisors, and personnel staff. From community colleges and 4-year institutions came deans, department chairs, and faculty members. Also in attendance were officials from the Maryland State Department of Education, representatives from the Maryland Education Coalition and other organizations, and MCTP students, mentor teachers, and faculty.

Thanks to the sheer number and variety of participants, "The energy in the meeting was remarkable," said MCTP Project Director Dr. Jim Fey.



"See MCTP as center stage" in Maryland's efforts to redesign teacher preparation, said Dr. Virginia Pilato of the Maryland State Department of Education. Dr. Pilato was the opening speaker for MCTP's Outreach Conference on January 21.

In the opening session, Dr. Virginia Pilato of the MSDE Certification Division described a framework of Maryland initiatives related to teacher preparation. She frequently connected MCTP's "leading efforts" with the goals of the state initiatives.

For example, Dr. Pilato reported that the need for strong undergraduate teacher preparation in mathematics, science, and technology propelled the "teacher education redesign" initiative approved by the Maryland Higher Education Commission in 1995. The MCTP program not only "fits" this and other initiatives, said Dr. Pilato, but it has "a starring, leading role, as we move into teacher education . . . in the next century."

Following Dr. Pilato's talk, people took part in interactive sessions led by MCTP faculty, mentor teachers, and student interns. For instance, Dr. Phillip Sokolove and Dr. Susan Blunck of UMBC engaged their audience in analyzing videotapes of Dr. Sokolove's "reformed" lecture course in introductory biology.

Comments from school teachers and principals included, "You are teaching your students as people, not as objects," and "Most of your questions involve higher order thinking," and

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Notes from the Executive Director

Dear Colleagues and Friends of MCTP:

It's been a busy month here in the MCTP! We've just sponsored a very successful Outreach Conference, attended by more than 170 enthusiastic and interested members of the mathematics/science/education community in the state. The following day we held our third annual "course debriefing meeting," during which faculty who have recently taught MCTP courses gathered to exchange successes and challenges of teaching in this way. Details about each of these events are included in this issue. You'll also read a feature on the teacher education research component of the project, which is unique among the NSF collaboratives nationally.

Technology has always played a major role in the way we do business in this project. Thus it makes sense for us to look to technology to solve the problem of sending this newsletter to an ever-growing list of interested colleagues. When you complete the Reader Survey enclosed in this issue, you will be giving us information about whether it is feasible to begin publishing our newsletter only on the Web or sending it to subscribers via e-mail, or if it's still important to produce it on paper. We would appreciate other feedback about the content of the newsletter, too. We do hope you'll complete and return the survey by mail or e-mail message.

We're beginning to work on our Year Four Annual Report, to be submitted to NSF on March 15. It's hard to believe that we're already more than halfway through the fourth year of the project. Lots of important work remains, though, with institutionalizing the new programs on the collaborating campuses, kicking-off the first capstone courses, planning for the support of our grads in their first years of teaching, and offering the third annual Mentor Teacher Workshop and another crop of student internship opportunities this summer--and lots more.

As always, we'd love to hear from you. Write, call, or e-mail us.

Susan Boyer
Susan Boyer

♦ ♦ ♦

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The Maryland Collaborative for Teacher Preparation is an undergraduate program associated with colleges, universities, research centers, and school systems throughout the state. MCTP's goal is to prepare teachers of grades 4-8 who are confident in teaching mathematics and science and can provide exciting and challenging learning environments for all students. MCTP is funded by the National Science Foundation.

Please direct comments about the "MCTP Quarterly" to
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"If we are to have students excited about mathematics and science . . . there is nothing more important than taking the time to think about how we present these concepts," said Dr. Freeman Hrabowski (right), President of UMBC, in a welcome to MCTP participants at the Fall Course Debriefing Meeting on January 22. To the left are SSU faculty members Dr. Dave Parker and Dr. Don Cathcart.

THE MCTP RESEARCH GROUP: LEARNING FROM THE MCTP EXPERIMENT

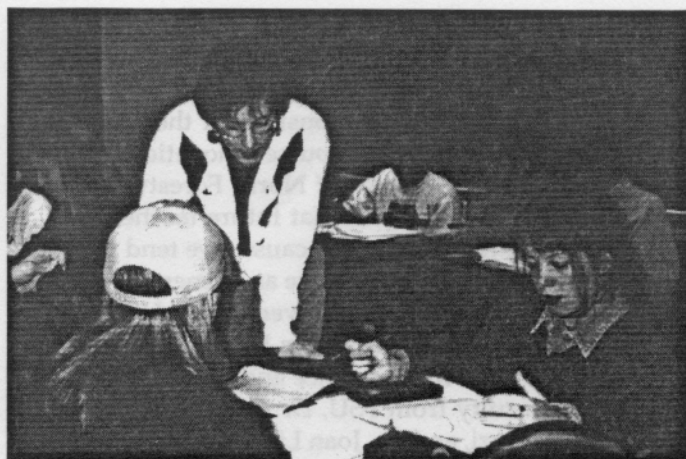
by J. Randy McGinnis and Tad Watanabe,
Co-Directors of the MCTP Research Group

The MCTP Research Group is dedicated to telling what is being learned as we pioneer new ways of learning and teaching mathematics and science at the undergraduate level. From the perspectives of faculty and students, we are continually documenting the unique elements of our program, particularly the instruction methods that model active, interdisciplinary teaching. Data collection strategies include regular surveys of students in MCTP classes; audio-taped and videotaped interviews of MCTP faculty and students; observations of selected MCTP classes; and collection of course materials. Thus far, our areas of research have focused on the following topics:

- ♦ The attitudes and beliefs of students in MCTP classes about the nature and teaching of mathematics and science;
- ♦ How mathematicians and scientists view each others' disciplines and how this impacts their classroom efforts to make connections between them; and
- ♦ How faculty attempt to model exemplary teaching practices and how their students perceive those efforts.

Below are a few findings at a glance; please visit the MCTP Web Site for full details about the studies (<http://www.wam.umd.edu/~toh/MCTP.html>).

- ♦ Compared with other teacher candidates, MCTP students hold more positive attitudes towards mathematics and science as well as more positive beliefs about the nature and teaching of mathematics and science.
- ♦ MCTP mathematics content faculty tend to refer to science as a discipline similar to mathematics in that it requires a sustained, focused study, while MCTP mathematics methods faculty tend to view science as a context for doing mathematics.
- ♦ MCTP science content faculty tend to view science as a body of knowledge, while MCTP science methods faculty view it as both a body of knowledge and a process.
- ♦ MCTP teacher candidates benefit from regular opportunities for discussions about reform-based pedagogy while taking mathematics and science content classes. These can be conducted in those classes or in concurrent seminars.



Students benefit from discussions of reform-based pedagogy while taking MCTP content courses, according to a study by Amy Roth-McDuffie (above, left, teaching an MCTP math course at UMCP) and Dr. Randy McGinnis.

We welcome your comments on these papers, which tell our story through the lens of educational theory. In addition, several prominent journals (including the *Journal for Research in Mathematics Education*, the *Journal of Research in Science Teaching*, and *School Science and Mathematics*) are now reviewing manuscripts adapted from our research presentations.

Last year, we presented our findings at the National Science Teachers Association, the National Association for Research in Science Teaching (NARST), the American Educational Research Association (AERA), the regional conference of the National Council of Teachers of Mathematics, and the Research Council on Diagnostic and Prescriptive Mathematics. Already in 1997, we have presented at the Association of Educators of Teachers of Science, and NARST and AERA have accepted our proposals to present new research findings this spring.

Next steps for the Research Group include piloting some content assessments of our MCTP teacher candidates as they complete their full program of MCTP mathematics and science classes. These data should give us some additional insight into the long-term impact of the MCTP courses.

A note to MCTP faculty and students involved in the research: Thanks to all of you for your time and energy to complete the surveys, to talk with us about your experiences, or to be observed by us in your classes. Your ongoing cooperation is critical if we are to learn from the MCTP experiment.

For more information about the Research Group's activities, contact co-directors Dr. Randy McGinnis at 301-405-6234 or jm250@umail.umd.edu, or Dr. Tad Watanabe at 410-830-3585 or tad@midget.towson.edu.

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"Students are clearly responsible for their learning." In praising the course innovations, principal Verlene Tatum of North Forestville Elementary School noted that future teachers should be taught this way because "we tend to teach from our own experience as learners."

Other hands-on sessions were offered by biological sciences faculty from BCCC, Dr. Joanne Settel and Tom Hooe; science and mathematics methods faculty from FSU, Dr. Marcia Cushall, Dr. Renny Azzi, and Dr. Joan Lindgren; and physical science faculty from UMCP, Dr. John Layman, and from UMES, Dr. Gurbax Singh.

"Since we are doing hands-on, interactive teaching in the schools, this is exactly what needs to take place" in teacher preparation, said Principal Almenta Bell of Chinquapin Middle School in Baltimore City. Ms. Bell added that she and her colleagues who attended the meeting agreed that preparing new teachers in this way "is going to spearhead more success and higher achievement for our students."

School system hiring staff were extremely attentive during the presentations by MCTP summer research interns Bill Carter (UMBC), Jessica Thomas (UMCP), and Josephine To (UMCP). When they finished describing their first-hand science experiences in NASA labs and Maryland streams, the three student presenters and six other interns in the audience were immediately approached by intent, inquisitive personnel officials.

It was "standing room only" in the session entitled "Discussion of Issues in Teacher Preparation," which was led by Dr. Genevieve Knight, MCTP Co-Principal Investigator, and Dr. Pilato. Much of the discussion centered on the difficulties faced by beginning teachers. Participants expressed intense opinions about the heavy workloads faced by most new teachers, the loss of talented teachers in the first years, the induction challenges faced by school systems that hire hundreds of new teachers each year, and the role of the state in setting guidelines for the first years of teaching.

The show of enthusiasm for the "Issues" session and the rest of the conference indicates that "the timing was just right for this event," said Susan Boyer, MCTP's Executive Director. "It seems that teacher preparation is on people's minds right now--it's a hot thing," she said, noting that recent national and state reports recommend changes in

teacher preparation that overlap very well with MCTP activities. "We are doing what's needed--that's why we think so many people found this conference worthwhile," she said.

◆◆◆ NOTICES ◆◆◆

TEACHERS:

- ⇒ If you teach math or science to 4th-8th graders, and would like a professional boost, become an MCTP Mentor Teacher! To apply for the 1997 MCTP Mentor Teacher Workshop, contact Donna Ayres at 301-405-1255 or ds219@umail.umd.edu. Application deadline is February 28.
- ⇒ If you were a 1996 MCTP Mentor Teacher, mark your calendars for March 6 for the Spring MTW Reunion.

STUDENTS:

- ⇒ For rewarding experiences in the "real world" of science and math, apply for an MCTP Summer Research Internship. Deadline for applications is February 24. For more information, contact Carolyn Parker at 301-405-1378 or cp98@umail.umd.edu.
- ⇒ Sign on to the MCTP Student Listserv! Share your experiences with fellow students and receive messages about internships and other MCTP activities. Send an e-mail message to listserv@umdd.umd.edu. Leave the 'Subject' line blank. Your message body should read: SUB MCTPINT (then type your name).
- ⇒ If you haven't done so, please return right away the Beliefs and Attitudes Survey you received last semester. If you've lost your copy, please contact Amy Roth-McDuffie at 301-405-1310 or ar70@umail.umd.edu. Your response is vital for MCTP research!
- ⇒ Congratulations to MCTP students Jessica Thomas and Josephine To of UMCP, who organized a highly successful Education Workshop in November attended by 70 MCTP students and mentor teachers!

FACULTY:

- ⇒ If you have not already received your MCTP Faculty Survey, you will soon. Please be sure to return them by February 28. Questions? Contact Donna Ayres at 301-405-1255 or ds219@umail.umd.edu.

PLANS FOR FACULTY DEVELOPMENT AND INSTITUTIONALIZATION DESCRIBED AT JANUARY MEETING

At UMBC on January 22, MCTP held a "Fall Course De-Briefing" meeting attended by 45 faculty members from around the state. In discussion groups for life sciences, physical sciences, mathematics, and methods faculty, participants shared the successes and challenges they faced during their recent MCTP courses. In addition, informal reports were given about each institution's plans for faculty professional development and for "institutionalization" of the MCTP program on their campuses. A few highlights follow:

Baltimore City Community College: At BCCC, Tom Hooe and other faculty are working to have the MCTP program approved by the curriculum committee this spring and added to the next course catalog. In addition, they plan to prepare a brochure for the program, to allocate MCTP scholarships, and to recruit new students through presentations at Baltimore City high schools and BCCC orientation programs. They also plan to give presentations on MCTP and constructivist teaching to the math and science departments at BCCC.

Bowie State University: With one of the smaller teacher preparation programs in the state, BSU will offer MCTP courses but not a full program. Dr. Sadanand Srivastava said that BSU's plans for the summer include offering faculty development workshops to increase the number of faculty participating in MCTP.

Coppin State College: At Coppin, faculty development is the biggest thrust for the year ahead. Dr. Genevieve Knight reported that three MCTP faculty members gave an overview of the program at a staff development session in January, and that a series of staff development presentations is planned for the spring. With fewer than 100 faculty members total, Coppin now has eight MCTP faculty, with seven more targeted to join in the summer and 10 more in the fall.

Frostburg State University: Dr. Marcia Cushall reported that FSU plans a 3-day faculty recruiting workshop for early in the 1997 summer session. Twenty faculty members will be selected to participate and receive a stipend. In addition, MCTP faculty are working to further coordinate FSU's methods courses with the teaching of new content and capstone courses.

Morgan State University: Working with Dr. Gil Ogonji of Coppin, Dr. Roselyn Hammond of MSU developed a prototype for 1- or 2-day

workshops to introduce faculty on any campus to the MCTP program and philosophy. Although MSU does not yet have an MCTP program, Dr. Hammond said that it has been suggested that MSU faculty visit sites where MCTP is active.

Salisbury State University: Thanks to the new courses developed by MCTP faculty, Interdisciplinary Science is now an official minor at SSU. Dr. Mark Holland reported that faculty recruitment efforts will include producing a brochure, a sampler document, and a Web page describing their program. They plan to piggy-back recruiting efforts onto a series of seminars on math and science teaching this spring. Having completed four faculty development workshops for MCTP courses, SSU next will target instructors of non-MCTP courses that affect the program.

Towson State University: Dr. Lorie Molitor reported that the MCTP program is "institutionalized" at TSU, with an approved program and courses "on the books." She noted that team teaching, in which new faculty "shadow" experienced faculty, has worked well at TSU for faculty development.

University of Maryland Baltimore County: MCTP faculty at UMBC have held workshops to convey key ideas to mathematics, computer science, and engineering faculty. Dr. Susan Blunck and Dr. Phil Sokolove plan to extend the discussions systematically to other programs across the campus. UMBC faculty also propose offering "courses within courses"—special discussion sections within science and math courses for students interested in education. In addition, they are developing an undergraduate research program similar to the MCTP internships.

University of Maryland College Park: UMCP has an approved MCTP program. Dr. John Layman described MCTP courses currently offered, as well as the struggles in dealing with very large departments at a research-oriented institution. Faculty development must be carried out within the departments, he said, and progress is being made in mathematics, physics, and biology.

University of Maryland Eastern Shore: UMES faculty plan a one-day interdepartmental faculty development workshop. The workshop will focus on alternative approaches to teaching, focusing on the major tenets of the MCTP philosophy, including constructivism, cooperative learning, alternative assessment, and the use of technology. They plan to invite representatives from schools in surrounding counties as well as from community colleges and 4-year institutions on the Eastern Shore.



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This will be your last MCTP Quarterly --
UNLESS you respond to the reader survey!

READER SURVEY

**Would you like to continue
receiving this newsletter?
If so, in what format?**

If we do not hear from you, this will be your last newsletter! As the mailing list for the *MCTP Quarterly* grows, we are discussing ways to economize while keeping communications open to those who want to stay connected. We need your opinions about the content of the newsletter, and about whether we should consider converting it to an electronic publication. If you wish to stay on the mailing list, please return this survey (with the mailing label) to MCTP at the address above by February 28, or send an e-mail message to mg147@umail.umd.edu. Thank you for your time!

1) If we were to notify you by e-mail that an upcoming issue of the *MCTP Quarterly* had been posted on the Web, what is the likelihood that you would visit the Web site to read it?

Not Likely Definitely
1 2 3 4 5

2) If you'd be interested in receiving the *MCTP Quarterly* electronically, please give your e-mail address (print clearly!):

3) Please rate your interest in the following content areas (least important to you is 1, most is 5):

	Least				Most
a) Faculty Profiles & Activities	1	2	3	4	5
b) Student Profiles & Activities	1	2	3	4	5
c) Institutionalization Issues	1	2	3	4	5
d) Mentor Teacher Activities	1	2	3	4	5
e) Meeting Summaries	1	2	3	4	5
f) Notices of Events	1	2	3	4	5

4) What other topics should we cover?

5) Other Comments: