

Executive Summary

Year Two Interim Report of the Project M³ - Preparing Tomorrow's Teachers to Use Technology

Prepared for

**College of Education
Wichita State University**

Project M³ Information

Project M³: Models, Mentors, and Mobility is a three-year project funded for over \$1.1 million by a Preparing Tomorrow's Teachers to Use Technology (PT3) grant from the United States Department of Education. Over the grant period, Project M³ will focus on building capacity among COE faculty and field based K-12 partner teachers to work directly with COE pre-service teacher education students in a way that will increase their capability to use technology in educational settings.

Project M³ is based on three basic beliefs. First, pre-service teachers must see **Models** of meaningful methods using technology integrated into their course subjects in a way that helps students reach standards of achievement. Second, pre-service teachers need faculty or student **Mentors** who know and understand technology and who are already using technology effectively. Finally, we must bring technology to students rather than the students to technology and, thus, overcome technology **Mobility** problems. An important part of the M³ grant includes the use of mobile computing as a method of engaging students and teachers in innovative applications of technology in instruction.

Five K-12 partner schools were originally included in the grant. The K-12 partners include a comprehensive high school, an alternative high school, a middle magnet school, a parochial elementary school, and an inner-city elementary school. All public schools are a part of Unified School District 259, Wichita Public Schools, and the parochial school is a part of the Wichita Catholic Diocese. The first group of partner schools was provided a mobile computer laboratory consisting of five laptop computers, airports and carts. Due to price reductions in equipment over the past year, the 2001-2002 partner schools receive nine laptops along with carts and airports. M³ provided hardware and software support necessary to get their labs operational as well as inservice opportunities for staff to learn how to use the labs for classroom instructional purposes.

Overview of the Project M³ Grant Goals and Objectives

In the year two Project M³ evaluation plan, activities were identified to meet goals and objectives included in the original grant proposal. In turn, a detailed plan was developed that included a timeline, a person responsible for overseeing data collection, and means by which each objective would be evaluated. The three Project M³ goals and 2001-2001 success indicators are outlined below.

Goal One – Models:

Members of the WSU Teacher Education (TE) faculty, PreK-12 Partner faculty, and Liberal Arts and Sciences (LAS) and Fine Arts (FA) faculty will effectively model the integration of technology into pre-service teacher education and content area coursework, by designing, implementing, and disseminating models of practice.

Goal One Success Indicators

- 1.1 COE, LAS/FA and partner school faculty will increase their use of technology in classroom instruction.
- 1.2 A high percentage of TE and partner school faculty will participate in professional development activities that support technology integration.
- 1.3 TE faculty will increase their use of the COE Technology Center equipment and wireless technology resources
- 1.4 TE faculty will develop a proposal for integrating technology into the WSU Teacher Education Program based on ISTE NETS*T standards and submit the proposal to the Associate Dean for Teacher Education by February, 2002 for approval by the Teacher Education faculty by May, 2002. Implementation of the proposal will be complete by June 2003.
- 1.5 PreK-12 teachers identified as technology models for pre-service teachers will increase the use of and level of use of technology in their classrooms by designing, implementing, and disseminating models of practice.
- 1.6 Pre-service teachers will increase their knowledge, understanding and use of technology in preparation for teaching.

Goal Two – Mentors:

The COE will coordinate the development of a broad-based network of mentors that will provide training and support for Teacher Education faculty, Liberal Arts and Science and Fine Arts faculty, K-12 partners, and pre-service teachers.

Goal Two Success Indicators

- 2.1 WSU student mentors will provide training and support for WSU faculty and grant partners based on identified needs.
- 2.2 Model practitioners (Teachers) will be identified and utilized as mentors to provide training in the partner schools.
- 2.3 Mentors from professional resources will be identified and utilized to provide training and support for grant partners.
- 2.4 Mentors from business/industry will be identified and utilized to provide training and support for grant partners.
- 2.5 In Year Two, Project M³ staff will make presentations to professional organizations in content areas on how to integrate technology and disseminate integration strategies to reading, language arts, and science and math teachers. In Year Two, M³ will underwrite the cost for travel and registration for WSU faculty and partner-school teachers/administrators to attend professional conferences to both present and learn.

Goal Three – Mobility:

Project M³ participants will expand student access to technology in classrooms and authentic learning environments by using laptops, wireless networks, and on-line

Goal Three Success Indicators

- 3.1 In Year One, provide mobile laptop lab computers, software and installation support for North H.S., Brooks Middle School, and COE. In Year Two, provide mobile laptop labs for Mueller Elementary, St. Patrick School, and Northeast H.S.
- 3.2 Development and use of on-line instruction for WSU Faculty and grant partners (Connected University, Blackboard, and materials will be posted on Project M³ Web site in Year One. COE, On-line English 101 and materials posted on the Project M³ web in Year Two.) Support will also be provided to facilitate faculty and partner school participation in on-line workshops in order to increase technology integration.
- 3.3 In Year One, develop and implement a handheld lab consisting of five Handsprings in order to model instructional uses to faculty. In Year Two, purchase seven more Handsprings, software, and peripherals and provide workshops for university faculty and community. Provide instructional support for integrating hand held technology into teacher education classes.

Summary of Key Findings, Conclusions and Recommendation

Key Findings for Goal One

Members of the WSU Teacher Education (TE) faculty, PreK-12 partner faculty, and Liberal Arts/Science (LAS) and Fine Arts (FA) faculty will effectively model the integration of technology into pre-service teacher education and content area coursework, by designing, implementing, and disseminating models of practice (GPRA 1.1, 1.2, 1.4, 2.1, 3.1, 3.2)

- A majority (60%) of the 30 WSU faculty members responding to an M³ technology questionnaire in the spring of 2002 reported participating in workshops facilitated by the M³ project during 2001-2002. Sixty-seven percent (67%) also reported engaging in one-on-one mentoring sessions provided by WSU – M³ student mentors.
- Forty-seven percent (47%) of the 158 teachers from M³ partner schools reported attending M³ sponsored workshops during the year. However, only 7% of the partner teachers indicated they had been involved in mentoring activities provided by the M³ student mentors.
- About one-half (47%) of WSU faculty reported utilizing resources posted on the M³ Website during the past year compared to only 5% of the partner-school teachers.
- High percentages of WSU faculty (96%-97%) and partner-school teachers (90%-92%) reported using technology for communication and for accessing information resources and media.
- Seventy-nine percent (79%) of the WSU faculty indicated they used presentation software for instructional purposes.
- Eighty-five (85%) of WSU faculty and 67% of the partner school respondents reported using technology to involve students in projects and presentations. An

- equally high percentage (68% WSU, 64% partner schools) reported requiring students to use the Internet to conduct research.
- Over 50% of all 30 WSU faculty responding to the spring technology questionnaire reported their participation in M³ had enhanced their use of technology in, (1) working with individual students on technology related projects, (2) modeling how to teach with technology, and (3) redesigning curriculum to include technology based on ISTE standards.
 - Fifty-four percent (54%) of WSU faculty reported that the M³ project helped them become more proficient at using the wireless mobile labs for instructional purposes.
 - Fifty-three percent (53%) of the 153 partner-school teachers responding to the M³ technology survey reported working individually with a student on technology projects and 47% reported working collaboratively with other teachers and WSU M³ faculty/staff about the use of technology.
 - At the end of the second year of Project M³ implementation, 90% of the WSU Faculty assessed their ability to implement technology with confidence, use the applications to prepare for and involve students in instruction, or to integrate technology into instruction in innovative ways. This represents an increase of 47% over the previous percentage (43%) recorded for WSU faculty in the spring of 2001.
 - Sixty percent (60%) of the 158 partner-school teachers self-assessed their levels of using technology at or above Level 4 on the Stages of Adoption scale. This percentage was identical to the levels reported by partner teachers in the spring of 2001.
 - The M³ staff facilitated a total of 14 professional development activities during the 2001-2002 school year. Feedback from workshop participants indicated high levels of satisfaction and / or agreement that the content of the workshops was beneficial in helping enhance the integration of technology into instruction.
 - During 2001-2002, twenty-three teacher education faculty members collaborated on developing a COE technology plan based on ISTE NET*S standards. The plan was finalized in the spring of 2002 and will be implemented starting fall semester of 2002.
 - During the 2001-2002 school year, Project M³ continued to expand the Technology Integration Projects for Students (TIPS) program by involving 22 participants (teachers, university students, and district curriculum support staff) who designed TIPS learning activities during summer workshops. TIPS for Social Studies (Spring 2002) had 20 participants' that produced web based social studies lessons (samplers, treasure hunts, scrapbooks, & WebQuests) and hotlists that correlated with district social studies outcomes.
 - M³ Staff who were Mindstorm Robotics Challenge facilitators reported an increase in 2002 levels of participation over its beginning year in 2001. Two hundred thirty eight 4th – 8th grade students (twenty-one teams) representing 16 area schools took part in the Lego Mindstorm Challenge in March of 2002.
 - Feedback obtained from a random sample of Block IV students via an on-line survey in April 2002 substantiated that Block instructors are utilizing a variety of hardware and software to present instruction. There is also evidence that Block instructors are requiring pre-service teachers to utilize technology to prepare and present model lessons prior to entering student teaching.

- Comparisons made between 2001 and 2002 pre-service teachers' responses on a technology survey indicated that 2002 pre-service teachers increased their use of technology during student teaching in 34 of the 45 areas assessed. Sizable increases in how 2002 pre-service teachers used technology were noted in use of the Internet and software to prepare lessons and to involve students in instruction.
- Comparisons of self-ratings on the M³ Student Stages of Adoption scale revealed that 77% of the 2002 pre-service teachers chose ratings in the top three levels on the scale during their final semester of student teaching, a 20% increase compared to 57% choosing the top three levels in 2001.

Key Findings for Goal Two

The COE will coordinate the development of a broad-based network of mentors that will provide training and support for Teacher Education faculty, Liberal Arts/Science and Fine Arts faculty, K-12 partners and pre-service teachers. (GPRA 1.1, 1.2, 1.4)

- Eight M³ student mentors held 1962 mentoring sessions with WSU faculty and partner school staff during Year Two of the grant. In all, mentoring support was provided in 21 different topic areas and involved a total of 4,577 hours of contact time. The largest amount of mentor time (1,812 hours) was spent on tech support followed by projects involving software applications such as Blackboard (419 hours) and Office Suite software (Word, Excel, Power Point, Front Page, Internet Explorer, etc. 200+ hours). The remainder of the time logged involved providing direct instructional support to faculty and staff as well as for planning and conducting mini-workshops. Information logged during the second year of M³ implementation indicates a sizable increase in student mentoring activity with the WSU COE faculty. The number of mentoring hours increased from 2,394 in 2000-2001 to 4,577 in 2001-2002. The number of mentoring sessions increased from 1,178 to 1,962 during the same time period.
- Feedback on end-of-year surveys indicated high levels of agreement and satisfaction among WSU faculty that support provided by M³ student mentors enhanced their skills and abilities in infusing technology into instruction.
- Although there was considerable evidence of M³ student involvement with WSU faculty, feedback from a variety of sources indicated, very few teachers in partner schools were involved in mentoring activities provided by the M³ student mentors.
- Each of the WSU COE faculty who participated in interviews agreed that what they found most helpful in advancing their skills and use of technology in instruction was the individual project based support provided through the M³ student mentors.
- M³ provided opportunities for WSU faculty and partner teachers to participate in field trips to two school districts with the primary purpose of connecting with technology proficient practitioners who could act as mentors and / or cooperating teachers in the future.
- A new source of mentors was identified during 2001-2002 as a result of a partnership developed between the M³ staff and the WSU Engineering Council. Engineering students interacted with students and teachers at Hadley Middle School in connection with the Mindstorm Robotics project.

- In a few cases, pre-service teachers have been placed with technology proficient teachers in partner schools. However, a need still exists to identify more field-based teachers to serve as mentors.
- The M³ Project Director reported that a total of 25 mentors from professional organizations and businesses had provided support for Project M³ activities during the current grant year. However, feedback on the M³ technology questionnaire indicated that there had been minimal contact between those responding to the questionnaire and mentors from business or industry. This may indicate that business and industry mentors are more active in supporting the M³ staff and the M³ infrastructure rather than providing first hand assistance to WSU faculty or partner-school teachers.
- A document review of the M³ website revealed that M³ staff and participants made a total of 15 presentations at local, regional and national conferences during the second year of the grant.

Key Findings for Goal Three

Project M³ participants will expand student access to technology in classrooms and authentic learning environments by using laptops, wireless networks and on-line instruction. (GPRA 1.4, 2.1, 3.2)

- At the beginning of the fall semester, the M³ Coordinator for partner-school activities delivered three mobile laptop labs (nine laptops each plus carts and access points. She assisted in setting-up network and configuring laptops. She also provided guidance in setting-up and using carts and establishing equitable checkout procedures. She later demonstrated how to use the laptops at school staff meetings that included approximately 90 K-12 teachers.
- The use of the mobile laptop labs has been highly successful in getting teachers and students involved in using technology in classroom settings. Feedback from faculty and from partner teachers during interviews indicated that students were highly motivated to use the equipment and that the opportunities for learning were limitless.
- Although feedback from WSU faculty and partner teachers was positive regarding the fact that M³ had provided mobile labs, some interviewees in partner schools, felt there were not enough laptops to accommodate an entire class at one time and scheduling was difficult, especially in the larger schools. In some cases, there had been problems with networking reliability and movement of equipment due to physical features within a building and with networking to printers.
- Formal training of faculty involved in developing the on-line English 101 course has been completed and resources have been purchased and distributed to the course developers. The course is scheduled to go on line in the fall of 2002.

Table 19 contains a final status designation for each of the three Project M³ goals. These ratings were determined by the program evaluation as a result of analyzing feedback obtained during face-to-face interviews, feedback obtained on paper and pencil questionnaires, on-line questionnaires, workshop survey forms, mentor logs and document reviews of products created as a result M³ activities. The ratings represent the evaluator's opinion of the current overall status of progress being made toward Project M³ objectives.

Although each of the M³ goals received overall ratings that indicate substantial progress has been made to this point in grant implementation, results obtained relating to some of the sub-indicators used to assess progress, suggest a potential for improvement. These areas are included in the recommendation section following Table 19.

Table 19: Overall Status Goals One, Two and Three

Goal	Indicator	Status
One	Members of the WSU Teacher Education (TE) faculty, PreK-12 partner faculty, and Liberal Arts/Science (LAS) and Fine Arts (FA) faculty will effectively model the integration of technology into pre-service teacher education and content area coursework, by designing, implementing, and disseminating models of practice. (GPRA 1.1, 1.2, 1.4, 2.1, 3.1, 3.2)	S
Two	The COE will coordinate the development of a broad-based network of mentors that will provide training and support for Teacher Education faculty, Liberal Arts and Fine Arts faculty, K-12 partners and pre-service teachers. (GPRA 1.1, 1.2, 1.4)	S
Three	Project M ³ participants will expand student access to technology in classrooms and authentic learning environments by using laptops, wireless networks and on-line instruction. (GPRA 1.4, 2.1, 3.2)	S

S= Substantially accomplished, P= Partially accomplished, N= Not accomplished, NA=Not addressed
I = Insufficient evidence to assess progress

Recommendations

Goal 1 Recommendations

- There is substantial evidence that progress has been made in the use of technology by COE faculty and teachers; and faculty have begun to expect pre-service teachers to plan for and utilize technology in their instruction. However, there is also evidence that among some faculty, there is a need for developing the skills for modeling the use of technology for students rather than relying on outside help or using the “do as I say, not as I do” approach.
- M³ staff should continue to find ways to publicize the M³ grant and encourage greater numbers of faculty and teachers to become involved in grant activities. This is specifically true of the need for more dissemination of information regarding the resources available for teachers on the M³ Website such as those included on the TIPS and the Mindstorm Robotics sites.
- Data from Technology Center logs indicate that usage of the mobile equipment, as well as the Technology Center facilities, has increased by as much as 100% within a year and is nearing the point that demand is exceeding current resources in many areas. Each of the COE faculty and staff that participated in interviews expressed concerns about availability of resources and recommended increases in equipment, software, training and support. M³ staff and facilitators have been pleased with the gains made by the Block faculty in the integration of technology into the curriculum, but have also expressed concerns about the faculty’s ability to sustain the momentum created by M³, especially once grant funding ends. Therefore, it is recommended that M³ facilitators work collaboratively with COE administrators in developing a plan

that will provide for continued support in fully implementing the COE technology plan adopted by the faculty in the spring of 2002.

- Grant facilitators should assess the grant's capability to continue to provide support to all of the partner schools now participating in the grant. It is recommended that M³ facilitators work with the M³ partner schools to assess current levels of progress being made toward grant goals and determine the most efficient and effective manner to continue to provide support for those schools showing continued need and interest.
- Project M³ should continue to plan and provide a variety of workshop opportunities designed to meet the needs of WSU faculty and partner school staff. Where possible, scheduling of workshops and other professional development activities should be coordinated with class schedules in a way that optimizes the opportunity for participation.

Goal 2 Recommendations

- For each of the past two years, high levels of participation have been documented in the M³ student-mentoring program. However, completion of end-of-project feedback forms has not been consistent with participation levels. It is recommended that the mentoring program be structured in a way that end of project assessment and feedback be made a required part of the process.
- Project M³ should continue to identify and provide training for individuals to serve as mentors to project participants, especially in the partner schools.
- There should be a greater effort on the part of the COE to match student teachers with technologically competent teachers in order to ensure that pre-service teachers are being provided opportunities to practice the use of technology in technology rich environments prior to entering the job market.

Goal 3 Recommendations

- Project M³ should continue to explore ways to become involved in providing on-line courses. Plans should be made to assess the impact of implementing the English 101 course in order to determine its effectiveness in meeting student needs.
- Project M³ should continue to explore the use of handheld devices as viable tools to aide in instruction.