READY TO TEACH

1. NEED FOR THE PROJECT

Statement of Need

The **Ready to Teach** Consortium joins the University of Massachusetts Lowell (UML), three public school systems, Lowell, Chelmsford and Methuen, and the statewide organizations Mass Networks Education Partnership and MassCUE (Computer Using Educators) in a collaborative effort to reframe, redesign, and restructure the UML graduate level teacher preparation program. Upon completion of their UML studies, new teachers will enter the profession with the knowledge and skills to use technology in teaching diverse students in a standards-based school environment. The International Society for Technology in Education (ISTE) Foundational Educational Technology Standards will shape the newly designed teacher education program.

Teacher education in the Commonwealth of Massachusetts is at a critical juncture: proposed new routes for teacher certification now include alternatives to the completion of an approved teacher preparation program as a condition of licensure. The State's goals in changing certification regulations include streamlining regulations, broadening access to the teaching profession, strengthening subject matter preparation for new teachers, and separating pedagogy, including technology, from subject matter knowledge. This last goal raises serious concern among teacher educators in the Commonwealth.

The school age population in Massachusetts is growing rapidly and the diversity of students is increasing. The need for teachers skilled in a wide array of instructional strategies, as well as content, is greater than ever. The State's move to standards-based teaching and learning and to high stakes testing of students requires that teachers be more, not less, familiar with the available methodologies and tools, especially technology, to help all students achieve the challenging goals established by the State.

Anticipating changes in licensing regulations, the UML Deans and faculties of the Graduate School of Education (GSE) and the undergraduate College of Arts and Sciences (A&S) reviewed the Graduate

Program in Teaching (GPT) and have begun retooling to meet new requirements. To streamline the route to certification, UML Graduate School of Education and undergraduate Arts and Science faculties have designed a "Fast Track to Teaching" program so that highly qualified UML undergraduates can begin teacher preparation course work while completing bachelors' degrees. Successful participants receive both degrees and teacher certification within five years. Also, UML Graduate Program in Teaching provided the initial training for a streamlined program for the Massachusetts Institute for New Teachers (MINT) whose participants are recruited nationally and receive a bonus to teach in the Commonwealth.

The Graduate Program in Teaching is steadfast in its commitment to high quality preparation of new teachers who are proficient in the use of technology. The T3 (Transforming Teaching with Technology) Consortium was formed in 1999 with PT3 Capacity Grant funding to ensure purposeful technology infusion into the preservice teaching program. Faculty received technology training and technical assistance to rewrite course syllabi; preservice practicum students have observed and worked in technology-rich classrooms. These initiatives are producing results in increased technology integration by UML faculty, but progress is slow and results are uneven. Tthe PT3 Capacity Grant has laid the foundation for a technology-integrated model of teacher education, but substantive change in the preservice teacher education program requires the more comprehensive and sustained commitment that the **Ready to Teach** Implementation proposal envisions.

Conditions are favorable in Massachusetts and the Consortium communities to collaborate in restructuring the Graduate Program in Teaching. Massachusetts schools have taken seriously the need to procure and install hardware, software and telecommunications equipment to ensure that students have access to technology. The **Ready to Teach** communities-- Lowell, Chelmsford and Methuen—are well equipped. The average ratio of computers to students is 4:1 and most schools can access the Internet through dial-up modem or broadband. Consortium communities have invested heavily in technology, but the status of technology integration in teaching is at a beginning level. Having access to and knowing about

technology is not the same as knowing how to use it to teach students. Professional development in technology-integration is an ongoing process in these communities, but it will take several years to produce a critical mass of technology-literate educators in each school who can use technology effectively in their teaching. An infusion of new teachers experienced in technology integration through their preservice program and who can "hit the ground running" will greatly speed up the transformation from technology-rich schools to technology-rich learning environments for K-12 students.

Two conditions in Massachusetts create urgent need to transform the UML teacher education program to a model of technology integration. First, the "digital divide" in Massachusetts is expanding and the need for new teachers is increasing; second, state education reform legislation focusing on standards and high stakes testing has put enormous pressure on educators to help all students achieve success.

The Digital Divide in Massachusetts*:*

Current students will enter a world of work in which technology skills are required for employment. In Massachusetts, which has the highest concentration of high-tech employment of any state in the country (Boston Globe, 5.18.99, D1), there is a shortage of technology-proficient workers to meet the needs of industry. In the past five years, the Massachusetts economy has seen an 86% growth in the knowledge-based service industries that require technology skilled workers and now account for 36% of all jobs in the state (Boston Globe, 2.11.00, E1). Yet, high unemployment rates persist in pockets of the inner cities, like Lowell, especially among people who are under-educated, low skilled, of color, or who have recently immigrated (Forrant, 1999). The disparity between statewide industry needs for workers and the readiness of the workforce to meet those needs is an educational challenge that can be addressed in elementary and secondary schools.

To gain the basic skills needed to access the region's job opportunities, youth, urban and suburban, must experience technology–integrated learning throughout their education. Despite the explosion of the Internet economy, 67% of homes in Massachusetts still do not have Internet access (NTIA,

1998). While no hard data exists, Lowell school principals report that the vast majority of their students do not have computers at home. The Consortium schools do provide computer access, but the equity challenge is to use technology effectively in teaching so that all youngsters experience the rich learning resources and skill development opportunities of new technologies, regardless of family income. The school age population is increasing as are the ranks of teachers approaching retirement. New teachers must be ready to meet the equity challenge.

Education Reform in the Schools:

The State's focus on standards-based learning and high achievement for all students requires that schools provide every student access to the kinds of powerful learning necessary to master the curriculum. Technology offers one potent means of providing such access to all students, no matter their learning style, prior educational experiences, or family background. Technology can offer teachers a set of curriculum and instructional development tools centered on student performance to address district, state, and national expectations for student skills and understandings.

Across the state, school districts are responding to the reform agenda on multiple fronts, including technology infusion. They have developed plans to infuse technology throughout curricula, are seeking new teachers proficient in a variety of technologies, and are considering technology integration as a criterion in review of veteran teachers.

Despite these efforts, however, student achievement scores on the state-mandated tests that measure mastery of the required curriculum have remained flat. Teachers are working hard to adapt to changes in the curriculum. But the exigencies of facing public pressure to improve their students' test scores while at the same time learning to use, apply and integrate technology into their teaching create conflicting demands on time and energy. As a result, not much has changed in teaching methods and many students, particularly those in urban communities, continue to fall behind.

The Ready to Teach Consortium

The **Ready to Teach** Consortium includes the University of Massachusetts Lowell, as lead agency, three public school districts in the northeast region of Massachusetts, and two statewide technology groups. A software vendor and evaluation firm are also collaborating in the project. All partners in the Consortium are committed to the preparation of new technology-proficient teachers.

University of Massachusetts Lowell:

The University of Massachusetts is committed to preparing technology-ready teachers for schools throughout the Merrimack Valley as part of its mission to support sustainable regional development. The *Graduate School of Education's Graduate Program in Teaching* is dedicated to preparing highly qualified teachers for elementary and secondary schools. As one of six NCATE accredited institutions in Massachusetts, the University has rigorous admission and retention standards in its preservice teacher program. The 90 elementary and secondary teachers enrolled in the Graduate Program in Teaching readily find employment in area schools in the Merrimack Valley, especially in the partner districts, and employer satisfaction is high. In addition, the UML Director of Educator Certification Programs coordinates the Massachusetts Institute for New Teachers (MINT) program for the state Department of Education to train and place annually up to 250 highly qualified recent college graduates and mid-career professionals who desire to teach.

Support for transforming the GPT comes from throughout the University. The *Center for Field Services and Studies* is the school-university outreach arm of the Graduate School of Education. The Center brokers university resources on behalf of public schools, and develops technology applications for teaching and learning across the K-16 continuum. The Center Director is the principal investigator on a FIPSE technology in teacher education grant as well as Director of the PT3 Capacity Grant. The University's *Faculty Teaching Center* provides faculty in the University with a variety of training opportunities to improve teaching and learning. The *Division of Media Services of the University Libraries*

is the technological integration support system for the University and provides a wide variety of specialized assistance in media and other technologies. The *College of Arts and Sciences* collaborates with the Graduate School of Education in the "Fast Track to Teaching" program and provides content expertise to the Graduate Program in Teaching.

School Districts:

The Lowell Public School Department is a 16,000 student urban school system that enrolls significant numbers of poor children from diverse ethnic, linguistic and racial backgrounds. Sixty-two percent of Lowell's students receive free or reduced lunch, and 54% are English language learners. The district has institutionalized its commitment to equity and excellence in education for all students, and marshaled an impressive array of resources to support that goal. Recognizing that most urban school children do not have computers at home, Lowell has acknowledged the importance of school-based technology experiences for students.

Chelmsford Public Schools serve nearly 6000 students in a suburban community whose continuing growth is due in large measure to the expansion of technology related industries in the region. With corporate families attracted to the town's well-regarded school system, Chelmsford now faces pressure to provide state-of-the-art technology education at the same time that it expands to accommodate higher enrollments. The district is responding as quickly as possible, given the limitations of school budgets. It has a technology plan in place and curricular integration strategies for technology.

Methuen is a small urban community in the Lower Merrimack Valley. The community has experienced growth and increased diversity in the last decade. Currently, school enrollment numbers 6883 K-12 students housed in nine schools. Free and reduced lunch is provided to 23% of Methuen's diverse student population, which includes growing numbers of bilingual, and ESL learners. A constant and predictable increase in student population has required that Methuen embark on a planning process to

convert three existing school buildings into K-8 grammar schools. Methuen is committed to providing technology access to all students and has installed computers with Internet access in all schools.

Agencies:

Mass Networks Education Partnership, a private, non-profit organization, supports the Curriculum Library Alignment and Sharing Project (CLASP) for standards-based curriculum and professional development within the context of Massachusetts' curriculum frameworks. The project shares the instructional design strategies and curriculum reform contributions of more than 150 school districts, higher education institutions, policymakers, representatives from the state's Department of Education, and other stakeholders in Massachusetts' education reform.

MassCUE (Computer Using Educators) is a grassroots organization of technology using educators who share state information, adult learning opportunities, and collegial experiences for teacher reflection, renewal and professional growth. MassCUE's annual statewide conference brings together educational practitioners to illustrate and explain integrated uses of technology in education. The MassCUE Massachusetts Learning Interchange, http://www.masscue.org/mli, offers online resources in support of teaching with technology, including technology-integrated lessons for sharing with other educators.

Summary of Major Needs

As the technology campus of the University system, UML has the infrastructure and the mandate to implement rapid, dramatic change in its Graduate Program in Teaching. But the University cannot make such change without involving its partner school districts. Indeed, the University and the districts recognize similar imperatives: that economic and demographic changes require an infusion of new teachers; that standards-based education and high-stakes tests create new challenges for schools; and that educational institutions must ensure student learning with technology. Thoughtful integration of technology into teacher education programs will prepare teachers ready to utilize technology to keep pace with the needs of K-12 students, including students with special needs and those whose first language is not English.

2. PROJECT DESIGN

The restructured Graduate Program in Teaching will be a 21st century learning environment that will prepare preservice teachers to enter the profession able to integrate content, best educational practices, and technology seamlessly and appropriately in classroom instruction. For this transformation to take place, Project goals address staff development needs of University faculty and teaching and learning goals for future teachers.

Goals, Objectives, Activities and Outcomes

Long Term Goals (3 years)

1. The transformed Graduate School of Education teacher preparation program will be model of technology integration in teaching and learning.

2. Preservice teachers will experience technology-rich learning environments in their graduate courses, in seminars, and in K-12 school placements.

3. Preservice teacher graduates will demonstrate attainment of ISTE Educational Technology Foundations Standards for All Teachers.

4. The GPT Program will develop and field-test products to implement, institutionalize and disseminate technology integration strategies and skills.

Goal 1: The transformed Graduate Program in Teaching will be a model of technology integration in teaching and learning.

1.1 Objective: All Graduate Program in Teaching faculty will integrate technology into their course design and implementation.

Activities:

- Each faculty member in the Graduate Program in Teaching will participate in technology skill development in a field and at a level appropriate to individual interests and needs, for example, web authoring for courses, various communication tools (e-mail, chat rooms, listservs, etc.), on-line discussion forums, and hypermedia
- Each faculty member will observe, either onsite on via two-way television, exemplary K-12 teaching with technology
- Each faculty member in the GPT will participate in a collaborative curriculum design project with K-12 teachers, Arts and Sciences faculty, and preservice students to infuse technology into a K-12 teaching unit which addresses state curriculum frameworks and district curriculum guidelines

- The Graduate School of Education will create a staffed Technology Integration Laboratory to facilitate faculty, preservice teacher and cooperating teacher exploration of technology resources and creation of teaching materials utilizing multi-media technology
- GPT faculty will attend the MassCUE Conference and/or on campus technology demonstrations by project staff-identified vendors to learn about the potential of technology to enhance teaching and learning

Outcome: Revised syllabus for every Graduate Program in Teaching course reflecting integration of technology
Outcome: Publication of five technology enhanced educational products annually developed by faculty and preservice teachers for consortium partner use

1.2 Objective**:** All Graduate Program in Teaching methods faculty and students will be trained in CLASP (Curriculum Library Alignment and Sharing Project – see www.Mass Networks.org for more information this program) to develop skills for curriculum planning in a technology-enhanced standards framework.

Activities:

- Mass Networks will provide workshops for GPT methods faculty and students on standards-based curriculum development practices using CLASP
- CLASP will be used as a core resource for methods courses
- Curriculum design team products will be disseminated statewide through the CLASP software to school districts and higher education institutions

Outcome***:*** Graduate Program in Teaching methods courses in academic year 2000 and after will utilize the CLASP process and software as curriculum resources for standards based teaching.

1.3 Objective: All GPT faculty and preservice teachers will participate with partner district cooperating teachers and Arts and Sciences faculty in curriculum design team work to infuse technology into a new or existing standards based teaching unit selected by the teachers.

Activities:

- Curriculum design teams consisting of GPT faculty, A&S faculty in disciplines relevant to the curriculum topic, 1-2 cooperating teachers, a school technology specialist and 3-6 preservice teachers will be formed in early fall of each year
- Design teams will meet for a full day for project orientation and training in CLASP as a tool for standards based curriculum design and a resource for teaching materials
- Project staff and partners will develop criteria to evaluate technology integration and standards based skills and content in a curriculum unit
- Design team members will observe in the school and classroom(s) of teachers whose units are being re-designed for technology integration
- Curriculum design team work will be ongoing throughout the fall and will take place in partner schools, the UML Technology Integration Laboratory, and in electronic workspace created for each team

- Design team members will utilize the University's Electronic Library and electronic resources for online collaboration, research, and discussion
- Preservice teachers will "staff" the teams as part of their graduate course work, by doing research, documenting the curriculum design process, assisting the cooperating teacher(s) and co-teaching part of the unit
- The field-tested units will be reviewed, revised, and disseminated in partner district schools and eventually in the CLASP statewide database or MassCUE Learning Interchange

Outcome: Preservice teachers, GPT faculty, and A&S faculty will participate with partner district teachers in the full curriculum design process to integrate technology into authentic teaching units.
Outcome: Standards-based technology integrated units will be published in the CLASP database or the MassCue Learning Interchange for statewide dissemination each year of the project.

1.4 Objective: Twelve Arts and Sciences faculty who teach in the Graduate Program in Teaching or in departments with "Fast Track to Teaching" programs will participate in faculty development activities to integrate technology into their undergraduate and graduate content area courses.

Activities:

- A&S faculty will be recruited based on willingness to develop technology integration skills and commitment to implement new learning into their courses
- A&S faculty will collaborate with GPT faculty in related content areas and with project staff to identify technology resources relevant to the content areas, and to utilize such resources in their teaching
- A&S faculty will work with GPT faculty, preservice teachers, and cooperating teachers on design teams to create new or modify existing curriculum units with technology

Outcome: By Year 3, courses of thirty-six (36) A&S faculty participants will include technology-integrated components.

Goal 2: Preservice teachers will experience technology-rich learning environments in their graduate courses, in seminars, and in K-12 schools.

2.1 Objective: All preservice courses and seminars will utilize technology in instruction and in course assignments.

Activities:

- All course syllabi will be put on the web and will be updated annually to include increasingly sophisticated links to resources and forums
- At least one course assignment in every GPT course will require demonstration of technology integration skill by preservice teachers

Outcome: All preservice teachers will develop skill and comfort with a variety of technologies as they progress through the GPT.
Outcome: By Year 3, courses of all GPT faculty will include technology-integrated components.

2.2 Objective: All preservice teachers will observe and assist in classrooms of teachers who integrate technology into their instruction, and will employ technology to reflect on and discuss their experiences.

Activities:

- Preservice teachers will prepare for observations by viewing a project-created CD ROM of exemplary technology integration teaching
- Preservice teachers will do onsite, two-way television, and/or video observation of technology-proficient teachers in classrooms of partner districts and other exemplary technology settings in the state
- Preservice teachers will engage with technology proficient teachers in weekly discussion about technology integration using UML's "Looking into Classroom" electronic forum
- Preservice teachers in field placements will utilize technology to work with K-12 students
- During the prepracticum, every preservice teacher will present a technology integrated lesson developed in joint planning with the classroom teacher

Outcome: Preservice teachers will demonstrate understanding of excellent technology-integrated teaching and learning through weekly reflections in an electronic forum.
Outcome: Preservice students will identify and utilize instructional practices and curriculum resources that effectively integrate technology into teaching and learning situations they encounter in prepracticum settings.

Goal 3: Preservice teacher graduates will demonstrate attainment of ISTE Educational Technology Foundation Standards for All Teachers.

3.1 Objective: Preservice teachers will demonstrate ISTE defined basic computer and technology operations skills by the time they have completed one semester of graduate study.

Activities:

- Project staff, in consultation with partners, will develop and implement a basic computer and technology skills evaluation instrument, which may include performance assessment, evidence of prior training, or documentation of skill level
- Project and partner staff will provide orientation and training opportunities each semester for preservice teachers to master basic technology skills

Outcome: At the end of one semester, preservice teachers will have the basic skills in computer and technology operations to use, troubleshoot, and evaluate hardware and peripherals.

3.2 Objective***:*** Preservice teachers will demonstrate mastery of ISTE identified skills in the areas of personal and professional use of technology.

Activities:

- Project staff, in consultation with GPT faculty, will develop a checklist of skill attainment in personal and professional use of technology to monitor preservice teacher progress and to provide a framework for curriculum planning in the GPT

- Project and partner staff will offer preservice teachers frequent and varied training opportunities as well as regular access to the GSE computer facilities
- All preservice teachers will participate in an Information Literacy workshop offered by the UML Electronic Library staff

Outcome: Preservice teacher graduates will demonstrate a comprehensive set of technology skills and knowledge to utilize in their personal and professional work.

3.3 Objective: Preservice teachers will demonstrate mastery of the application of technology in instruction at the grade levels and in the content areas of their licenses during their practicum experiences.

Activities:

- Project staff and GPT faculty will research and develop a checklist of skill attainment and illustrative products in the application of technology in instruction as a tool for preservice teachers
- GPT faculty members will agree on the pace and place of technology skill acquisition and demonstration in the program, and apportion specific learning activities to different courses and field experiences to avoid duplication and to scaffold preservice teacher competency development
- Each course in the GPT will require successful completion by preservice teachers of at least one technology-integrated assignment
- Preservice teachers will participate with GPT and A&S faculty and K-12 teachers in curriculum design teams focused on infusion of technology to enhance student learning in line with state curriculum frameworks and district curriculum guidelines
- Preservice students will have access and support from the Technology Integration Lab to develop instructional materials for courses and field work, and to produce portfolio materials for graduation

Outcome: By the end of Year 3, all preservice teachers will demonstrate prior to graduation mastery of the ISTE Foundation Standards in Technology through a final portfolio which will include a personal webpage, technology-integrated teaching materials that are standards-based and employ universal design principles, evidence of understanding about ethical, legal and pedagogical dimensions of technology, and other components that GPT faculty may require.

Goal 4: The GPT Program will develop and field test products to implement, institutionalize, and disseminate technology integration efforts in the Graduate Program in Teaching, the College of Arts and Sciences, and the partner school districts.

4.1 Objective: A suite of integrated, web-based software applications produced by an area software developer will be implemented to facilitate communication, collaboration, problem solving, community building, resource sharing and documentation of technology integration learning among project participants.

Activities:

- Project staff will determine performance criteria for a suite of integrated web-based software to support project goals, and select applications that meet those goals for faculty, preservice teacher and cooperating teacher skill development
- Software provider will offer training, user support, and feedback on implementation of selected products

- Project staff will monitor participant use to determine satisfaction and progress in developing proficiency with the software and in achieving project goals

Outcome: All project participants will gain skill and comfort working with web-based software applications that support project goals.
Outcome: By Year 3, all GPT faculty and participating A&S faculty will incorporate web-based software applications into their courses as models of technology integration and as tools for fostering virtual learning communities.
Outcome: Cooperating teachers, GPT supervisors and both preservice and beginning teachers will utilize web-based software applications to communicate, collaborate, problem-solve, and provide support during the practicum and the induction experiences.

4.2 Objective: Project staff will produce three (3) interactive compact discs for classroom observation skill development and demonstration of technology integration in teaching at elementary, secondary, and higher education levels.

Activities:

- Project staff will videotape K-12 teachers and higher education faculty who are exemplars of technology integration consistent with the ISTE standards
- Video clips will be selected and text, including questions, developed to focus CD viewer attention on elements of effective technology-integrated teaching
- Viewer feedback will be collected to monitor growth in knowledge and understanding of technology-integrated instruction

Outcome: Preservice teachers will develop keen classroom observation skills and understanding of the value of technology integration in teaching.
Outcome: GPT and A&S faculty will understand the relevance of technology integration in higher education instruction.
Outcome: Project staff will produce and disseminate for educational use three (3) interactive CD's showing exemplars of technology-integrated teaching and learning.

Project Design Description

The transformation of the Graduate Program in Teaching (Goal 1) requires significant faculty time and learning to incorporate ISTE educational technology standards into preservice courses, field placements and performance assessments. However, we have learned in our PT3 Capacity grant that provision of faculty development opportunities will not alone result in technology integrated teaching in graduate courses, nor in preparation of technology proficient preservice teachers. Rather, faculty development in technology needs to be embedded in curriculum and instructional tasks related to courses so that application of new learnings by faculty is immediate and purposeful. In view of this understanding,

the **Ready to Teach** project will require faculty participants not only to develop individual competencies but also to integrate technology in their courses and to engage in collaborative curriculum work with partner school teachers. GPT faculty and their A&S counterparts will participate in design teams with K-12 cooperating teachers and preservice teachers to revise and improve teacher-selected instructional units with technology resources and content enrichment. A design team facilitator experienced in work with university and school faculties will convene the teams, oversee the progress of their work, and access resources on their behalf. The Curriculum Library Alignment and Sharing Project (CLASP) will provide a standards-based framework for the curriculum design process. Technology-enhanced units can be disseminated through Mass Networks CLASP software repository and the Mass Learning Interchange. **Ready to Teach** project staff will support the design teams with multimedia, electronic library, video production, hardware and software resources.

A key element of the **Ready to Teach** proposal is creation of a Technology Integration Laboratory at the Graduate School of Education. This staffed, state-of-the-art multimedia environment will be available to faculty, preservice teachers, and cooperating teachers to design and produce instructional materials for university and K-12 teaching. The Lab will provide an informal drop-in site for GPT and A&S faculty, preservice teachers and cooperating teachers to explore and create technology integrated instructional materials. Equipped with 6 multimedia iMAC stations and appropriate software and video resources, the Lab will also house a collection of commercial CD-ROMs in a variety of content areas. Products developed by participants in the Technology Integration Lab will be part of the **Ready to Teach** project portfolio to be disseminated in partner districts and in the PT3 grantee network.

A crucial element in transformation of the Graduate Program in Teaching is provision of technology-rich learning environments for preservice teachers throughout their preparation (Goal 2). In support of this goal, **Ready to Teach** will include in its faculty development not only the GPT faculty but Arts and Sciences undergraduate faculty in UML departments that sponsor “Fast Track to Teaching”

programs. For field placements, preservice teachers will be assigned to observe, assist and student teach in classrooms of partner district teachers who are skilled in the integration of technology into standards based instruction. Supplemental observation opportunities will be provided in concert with MassCUE. Finally, CLASP can provide a common template for lesson and unit planning in GPT courses and for field work assessment in the partner districts.

The ISTE Educational Foundation Standards will benchmark the transformation of the Graduate Program in Teaching for All Teachers (Goal 3). GPT curriculum redesign, individual course planning, and preservice teacher performance assessments will be keyed to these standards. In order to graduate, and be recommended for state license by the University, preservice teachers will demonstrate mastery of the ISTE standards in a final portfolio.

Implementation of technology products specifically relevant to **Ready to Teach** (Goal 4) is a powerful strategy to achieve project goals. A Consortium website will provide the portal for entry to TeachSuite, an integrated suite of 8 web-based software applications that will include a number of linked tools to support project work. For example, Forum will enable individual faculty to create structured, course specific threaded discussions which can be searched and archived to document student learning; Collaborate will provide electronic workspace for curriculum design teams to share ideas and develop text for their group; Observe will offer a standards based guide to classroom observation that will be accessible to both preservice teachers, GPT faculty, and the K-12 teachers whose classrooms are the focus of the observations. Several other applications are in development by TeachSuite creators and will be added to the project as staff and faculty determine.

All project participants will be connected via the Consortium's application server and website. Thus, a K-16 technology learning community will be formed as soon as the project is online. The support and resource access available in such a community will foster individual as well as group learning. In addition, TeachSuite applications will enable preservice teachers to document their work in a variety of

courses and compile it into a portfolio for graduation. Similarly, cooperating teachers, university faculty and other partners can participate in role-specific as well as cross-role forums to expand their own technology knowledge and to collaborate with colleagues on issues of common concern.

CD's for discreet learning tasks are another kind of product that **Ready to Teach** will produce in support of project goals. Using the expertise gained in a FIPSE grant, where we piloted an interactive CD to teach observation skills, we will create 3 CD's to demonstrate exemplary technology-integrated teaching in a variety of settings, higher education as well as K-12 schools. These products will be used in faculty development efforts as well as preservice teacher education, and will be disseminated in partner districts as well as in the PT3 grantee group.

3. ADEQUACY OF RESOURCES

Resources from consortium members are adequate to support the **Ready to Teach** project at the requested level of funding. The University of Massachusetts Lowell, the "technology campus" of the state university system, has in place the infrastructure to support extensive faculty development and electronic communications among project participants. Located on three geographically separate campuses in Lowell and North Chelmsford, UML has established fiber optic links to connect all campuses to its computer and video network, including the Electronic Library, e-mail, web and video servers. The West Campus, in North Chelmsford, which houses the Graduate School of Education, is inter-connected via 10BaseT Ethernet directly to faculty, staff and computer lab desktops. The GSE has two computer laboratories (one PC, one MAC); one distance learning classroom linked to the statewide MITI system for two way television transmissions and satellite downlinks; extensive fiber optic and microwave connections to public school systems in the region; three "Smart Classrooms" with document cameras, integrated video, Internet and CD presentation capability, and video conferencing access; video and CD-ROM production facilities; a non-linear video editing suite; a campus-based web server and a new video server. Technical support and maintenance for this infrastructure is provided by the Center for Field Services and Studies.

There are, however, no multimedia authoring facilities at West Campus and the project requests funds to develop a Technology Integration Laboratory to meet the need for multimedia product development by faculty, preservice teachers and K-12 cooperating teachers. The proposed lab will include six iMac multimedia work stations with USB zip drives, six scanners, two color printers, two mini DV cameras, two digital still cameras, a VCR and monitor, five iBooks, and one external hard drive, and multimedia software and commercial CD-ROMS's for content areas. The University will provide systems maintenance. This one time expenditure of $24,000 for hardware represents less than 3% of the project's total first year cost from the funder and the consortium, but will prove a significant lever of change in faculty and preservice teacher development and a resource for sustaining the transformation after the grant period.

Other University resources are also committed to this effort. The University's Electronic Library subscribes to over 350 electronic resources with access to over 4500 full-text journal titles, as well as proxy server and PPP accounts that allow full access to the proprietary database from off-campus locations. The Division of Media Services of the University Libraries manages seven "Smart Classrooms" on the undergraduate campuses designed for teaching with technology. These facilities are available to Arts and Sciences faculty involved in **Ready to Teach**. Media Services also provides professional digital and analog video production services to faculty, CD burners, an extensive loan program of laptop computers and LCD projectors, as well as a library of 4300 videos and professional staff to assist faculty and students in use of these resources. The Director of Media Services is a member of the **Ready to Teach** planning team and will supervise installation and staff selection for the Technology Integration Laboratory on West Campus.

Structured faculty development opportunities in teaching with technology are provided by the Faculty Teaching Center (FTC) located on one of the undergraduate campuses. Twice yearly, during semester break and in June, the FTC offers workshops on topics such as Electronic Information Resources, Visualizing Course Content, Learning Centered Teaching, and Syllabus Redesign for Outcomes. The FTC will reserve 5 slots in each of these workshops for **Ready to Teach** faculty.

In addition to providing a well-developed technology infrastructure to the project, UML will commit significant resources to support **Ready to Teach**. Substantive contributions include personnel time, facility use, technology upgrades and maintenance, six faculty buyouts, electronic library subscriptions and tuition vouchers for up to 25 cooperating teachers from the partner districts, one full and one half-time graduate student assistant positions, and software licenses for all project participants. In addition, the University Development Office is working with the GPT to seek corporate funding, and Cisco Systems, Bell Atlantic and Lucent Technologies support technology initiatives in the partner school districts.

School district partners also offer a wealth of resources to support integration of teaching and technology. The Lowell Public Schools have attained a high level of technology readiness in their 29 schools. All buildings are connected in an I-Loop from the local cable company, and will soon be linked to the University for two-way television and satellite downlink transmissions in any classroom. There are computer labs in every school, with PC labs at the high school and a laptop for every secondary teacher. Macintosh computers are in place at elementary and middle schools, and the technology plan is focused on putting computers in every classroom. Technical support and assistance are provided to teachers by 27 technology integration specialists, 17 library media specialists, and 28 library aides. In addition, the district has an MIS director, an intranet web master, a full time repair technician, a network manager and television producer at the high school, and a computer facilitator. The professional staff works under the direction of an Administrator of Educational Technology, who is the **Ready to Teach** project contact for the district.

As a participant in the Massachusetts Project MEET, funded by a federal challenge grant, Lowell is utilizing a "train the trainer" model to ensure that 50% of Lowell's 1700 teachers are prepared to integrate technology in instruction. Lowell's participation in **Ready to Teach** includes providing teachers to work with University faculty in understanding technology integration and field placements for preservice teachers in a wide variety of classrooms where technology is being used to help special needs, English language learners, and mainstream students achieve success.

The Chelmsford Public School system has one PowerMac lab with 28 computers, scanner, laser and color printers in each of its elementary schools; two PC or Apple labs in each middle school, and several dedicated labs in the high school for graphic arts, math, world languages, writing, and science. A team of Technology Media Specialists and assistants provide direct service to students in labs and work with teachers to construct curriculum and lessons with a technology dimension. The district technology plan includes networked classrooms and an ambitious program of staff development in technology integration for all teachers. As part of its contribution to **Ready to Teach**, Chelmsford will make its computer labs available for design team work and for preservice teachers to use during field placement.

The Methuen Public Schools are also technology-ready. Each of its four elementary schools has four PC computer labs and every classroom has 2-3 computers. The high school's 450 computers are dispersed throughout the building, in both lab and classroom arrangements. All schools have computer-equipped Media Centers and Internet access. Methuen's contribution to **Ready to Teach** includes assignment of a curriculum specialist to work with the Consortium in identifying exemplary technology-proficient teachers for field placements and an open invitation to preservice teachers to attend Methuen's staff development program in technology and standards based teaching.

Mass Networks Education Partnership is involved with over 200 districts throughout the Commonwealth through the federally funded Project MEET initiative, the Curriculum Library Alignment and Sharing Project (CLASP) statewide consortium and the Technology Curriculum Integration Leadership Program (TCI-LP). Mass Networks' specific contribution to **Ready to Teach** is provision of and consultation in use of CLASP software, a database of curriculum resources and a tool set that facilitates curriculum development and lesson planning in the context of standards-based education. Mass Networks also offers staff with extensive experience in education reform initiatives, especially standards-based curriculum development and effective technology integration.

MassCUE, a statewide network of technology users, supports a structure of mentoring groups (SIG's) whose goal is to assist teachers in technology implementation and to monitor developments in the field. Through its Learning Interchange, an online resource for technology education, MassCUE links teachers throughout the state in a collaborative community that is also connected to the national Apple Learning Interchange. At its well-attended annual conference, MassCUE showcases teachers using technology, and the organization also provides publications and forums for practitioners. MassCUE's contribution to **Ready to Teach** includes identifying exemplary technology users and resources throughout the state, discounted memberships for preservice teachers, access to the Learning Interchange, formation and support for SIG's in partner districts, and dissemination opportunities for both preservice teacher products and project news in its conference, journal, monthly calendars, and online forums.

Development of TeachSuite, the integrated software applications that will build and support a project learning community, is being undertaken by Better Communities, a local software firm which has provided customized tools for Center for Field Services and Studies funded projects. The **Ready to Teach** Consortium will license 8 applications with specific relevance to the project, at less than half the fair market value. The developer is providing a significant contribution to the project in consideration of the Consortium's willingness to utilize the applications in the project. In addition, the Graduate School of Education will retain license rights, at no additional cost beyond the project period, for all future preservice teachers and faculty. Training and technical support skills will be developed by Center for Field Services and Studies staff during the project period to assure continued, successful utilization of the applications.

4. MANAGEMENT PLAN

Ready to Teach is a complex endeavor. Consortium partners will meet monthly for project oversight and course correction. The Project Directors and project staff will oversee coordination and ensure on-time completion of tasks as detailed in the following Management Plan. For staff time allocated to the project, see Line Item Budget and Budget Narrative.

Accomplishing Project Tasks: Responsibilities, Participants, Timelines, Outcomes

Goal 1: Transformation of the Graduate School of Education to a model of technology integration in teaching and learning.

Objective 1.1 All Graduate Program in Teaching faculty will integrate technology into their course design and implementation.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Faculty skill assessment/ development	GPT faculty	Project staff, partner teachers	Monthly workshops; ongoing support Y1,2,3	Y1-50%; Y2-75%; Y3-100% syllabi change
Faculty observations in partner districts	GPT faculty, K-12 cooperating teachers	Project Coordinator, Tech Assistant	Weekly, fall and spring semesters Y 1, 2, 3	Demonstrate exemplary technology integration practices
Collaborative Curriculum Design project	GPT, A&S faculty, preservice students, K-12 teachers	Design Team Facilitator, Project Coordinator, staff	Sept-May, Y 1, 2, 3	Revised unit of cooperating teacher is infused with technology
GSE staffed Technology Integration Laboratory	GPT, A&S faculty, preservice teachers, cooperating teachers,	Technology staff, media staff, project staff	Year 1, 2, 3	Lab operational within first year of grant; continued use by participants
MassCUE conference	GPT faculty, preservice teachers	Project Coordinator	Annually - November	30 participants attend annual MassCUE conference

Objective 1.2 All Graduate program in Teaching Faculty and students will be trained in CLASP to develop skills for curriculum planning in a technology enhanced standards framework.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
CLASP training	GPT faculty, preservice teachers	Mass Networks, Project staff	Every semester, Y 1, 2, 3	All faculty and preservice teachers trained in CLASP usage
CLASP use in curriculum design teams and GPT methods course	GPT faculty, preservice teachers	GPT faculty, project staff, Mass Networks	Design teams trained in fall; cont'd support in use of CLASP Y 1, 2, 3	Methods class syllabi include CLASP; design team products deposited in CLASP database

Objective 1.3 All GPT faculty and preservice teachers will participate with partner district cooperating teachers and Arts and Science faculty in curriculum design team, work to infuse technology into new or existing standards based teaching unit selected by the teacher.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Create curriculum design team	A&S, GSE faculty, cooperating teachers, preservice teachers	Project coordinator, Design team facilitator	Summer, Y 1, 2, 3	Design teams formed to work together all year
CLASP training	A&S, GSE faculty, cooperating teachers, preservice teachers	Project Coordinator Mass Networks	Fall Semester, Y 1, 2, 3	All design team participants trained in use of CLASP
Observation in design team teachers' classrooms	A&S, GSE faculty, cooperating teachers, preservice teachers	Design team facilitator; Project coordinator	Fall, Spring semesters, Y 1, 2, 3	Periodic observation in classrooms of design team teachers
Use Tech Lab, electronic library, research to create unit infused with technology	A&S, GSE faculty, cooperative teachers, preservice teachers	Project coordinator, design team, UML media, technology staff	Fall, spring semesters, Y 1, 2, 3	Curriculum redesign with technology and enter into CLASP or MassCUE

Objective 1.4 Twelve Arts and Sciences faculty who teach in the Graduate Program in Teaching or in departments with "Fast Track to Teaching" programs will participate in faculty development activities to integrate technology into their undergraduate and graduate content area courses.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Recruit 12 A&S faculty for design team	A&S faculty	Project staff; Design Team Facilitator	Summer, Y 1, 2, 3	A&S faculty commit to design team
Collaborate on curriculum change with design team partners	A&S, GST, faculty cooperating teachers, preservice teachers	Design Team Facilitator,Project Coordinator,Project staff	Fall, Spring semesters, Y 1, 2, 3	A&S faculty will add technology integration components into their courses

Goal 2: Preservice teachers will experience technology-rich learning environments in graduate courses, seminars, and K-12 schools.

Objective 2.1 All preservice courses and seminars will utilize technology in instruction and in course assignments.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
GPT course syllabi placed on web	GPT faculty	Project Coordinator, staff, softwareprovider	Fall semester, Y 1, 2, 3	Course syllabi on web and on e-forums
GPT coursework revised and infused with technology	GPT faculty, preservice teachers	GPT faculty	Ongoing, Y 1, 2, 3	GPT show evidence of change in their courses. Preservice teachers demonstrate technology infused unit.

Objective 2.2 All preservice teachers will observe and assist in classrooms of teachers who integrate technology into their instruction, and will employ technology to reflect on and discuss their experiences.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Field or virtual observations of exemplary technology	Preservice teachers, cooperating teachers	Cooperating teachers, design team facilitator, Project coordinator, technology staff	Fall, Spring semesters, Y 1, 2, 3	Show best practices through a variety of media
Engage in a discussion via e-forum	Preservice teachers	Technology staff, webmaster	Weekly Throughout project	Weekly written reflections on what has been learned
Preservice teachers utilize what has been learned during their field placements	Perservice teachers, cooperating teachers	Cooperating staff, Project staff	During each field placement	Actual unit presented by preservice teachers in their field placement

Goal 3: Preservice teacher graduates will demonstrate attainment of ISTE Educational Technology Foundation Standards for All Teachers.

Objective 3.1 Preservice teachers will demonstrate ISTE defined basic computer and technology operation skills by the time they have completed one semester of graduate study.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Develop basic technology skills assessment tool; training opportunities	Preservice teachers	Project coordinator, technology staff, GPT, Mass CUE	Tool: Fall, Y 1 Training: Fall & spring, Y 1, 2, 3	Preservice teachers demonstrate attainment of ISTE skill level 1

Objective 3.2 Preservice teachers will demonstrate mastery of ISTE identified skills in the areas of personal and professional use of technology.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Develop checklist of personal and professional use of technology skills	Preservice teachers	Project Coordinator, staff, GPT faculty	Fall semester, Y 1	Checklist for measurement of ISTE level 2 skill attainment
Training opportunities provided, including Information Literacy	Preservice teachers	Project and partner staff, UML Media Services	Each semester, Y 1, 2, 3	Participation in training

Objective 3.3 Preservice teachers will demonstrate mastery of the application of technology in instruction at the grade level and in the content areas of their licenses during their practicum experiences.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Develop technology application skills assessment tool	Preservice teachers	Project staff, GPT, faculty, Technology staff	Fall, Year 1	Measurement Instrument in place to demonstrate attainment of ISTE level 3.
Formulate at least one technology infused unit	Preservice teachers	GPT faculty	Each semester, Y 1, 2, 3	Successful completion and showcase of units
Design team assembled and ongoing	Preservice teachers, GPT A&S faculty,cooperating teachers	Project Coordinator and Design Team Facilitator	Summer Y 1, 2, 3	Design team formed to work together throughout year
Technology Integration Lab used	Preservice teachers	GPT faculty, project staff	Y 1, 2, 3	Produce materials for portfolios

Goal 4: The GPT Program will develop and field test products to implement, institutionalize, and disseminate technology integration efforts in the Graduate Program in Teaching, the College of Arts and Sciences, and the partner school districts.

Objective 4.1 A suite of integrated, web-based software applications will be implemented to facilitate communication, collaboration, problem solving, community building, resource sharing and documentation of technology integration learning among project participants.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Develop criteria for suite of web based software	A&S faculty, preservice teachers, coop. teachers	Project Staff, Better Communities	Y 1, 2, 3	Yr 1- 4 applications developed Yr 2- 2 applications developed Yr 3– 2 applications developed
Training on and support of selected web based software applications	All project participants	Project Staff	Y 1, 2, 3	Participants trained and using applications

Objective 4.2 Project staff will produce three (3) interactive compact discs for classroom observation skill development and demonstration of technology integration in teaching at elementary, secondary, and higher education levels.

Activity	*Participants*	*Responsible Persons*	*Timeframe*	*Outcomes*
Video of K-12 and higher education exemplary teachers for dissemination.	Preservice teachers, GPT, A&S faculty, partner teachers	Videographer, technology staff	One per year	Production of three CDs

5. EVALUATION PLAN

The Evaluation Plan is comprised of five interlocking components, each with associated objectives, processes, activities, and products. These are 1) Formative Evaluation, 2) Summative Evaluation, 3) Innovation Configuration and Practice Profile, 4) Determining Usefulness of Learning Technologies to Improving Teacher Preparation, and 5) Post-Grant Evaluation.

1) Formative Evaluation: Multiple indicators will be used throughout the three-year life of the project to document progress and provide data for decision-making. The plan includes mechanisms for collecting data and communication of the analysis of that data back to consortium partners for elaboration and corroboration. Monthly meetings with consortium partners and project staff, regular e-mail and phone communication, regular postings to the partners' web-based electronic forum and annual evaluation reports will enable information to be used to manage progress towards stated goals and objectives.

The evaluation team's role in the area of Formative Evaluation is to provide focus, raise questions and concerns, and to serve as a mirror of project implementation. The evaluation team will facilitate an ongoing dialogue by asking formative evaluation questions related to the implementation of each project component. The answers to these questions will provide the guidance for establishing evaluative criteria for each component and will guide the development of evaluation instruments and protocols.

2) Summative Evaluation: A well-designed set of summative indicators is needed to evaluate progress toward stated performance goals. We see this as accountability evaluation; that is, continuous improvement based on results. The Summative Evaluation will focus on answering the following questions using the data collected throughout the life of the project.

Project Implementation

1. Were project activities carried out as planned?
   - What activities had to be modified, dropped, or added?
   - What was the rationale for such changes?
   - What obstacles to implementation were discovered?
   - How were these obstacles dealt with?

What was learned from design, development, and implementation activities related to each goal and objective?
How were lessons learned and incorporated into project plans?
What are the implications of these learnings for future/full-scale implementation?

2. Were project timelines met?
   - To what extent were timelines realistic? Over- or under-estimated?
   - What accounted for timelines not being met?
   - How were obstacles overcome?
   - What was learned from timeline issues?
   - How were lessons learned and incorporated into project plans?
   - What are the implications of these learnings for future/full-scale implementation?

Project Effectiveness

1. How effective is the project and model in terms of:
   - Quantity: the number of participants, extent of implementation, etc.
   - Quality: the soundness of project components, activities, plans, materials, designs, etc.
   - Diversity: the range of participation in terms of all local aspects of diversity.
2. What obstacles to quantity, quality, and diversity were met?
   - To what extent were these obstacles related to context factors (lack of support for university faculty, logistics, limited incentives for participants, etc.)?
   - To what extent were these obstacles related to design factors (false assumptions, poor design, incomplete development, etc.?
   - To what extent were these obstacles related to implementation factors (inadequate preparation and foundation, implementing poorly or incompletely, etc.)?
   - To what extent were these obstacles related to outcome factors (unrealistic anticipated results, unclear outcomes, etc.)

Project Outcomes

1. What specific outcomes were sought for:
   - University faculty?
   - Preservice teachers?
   - Partner organizations?
   - The field at large?
2. What evidence is there that these outcomes have been achieved?
   - Qualitative/anecdotal
   - Quantitative: number, frequency, intensity
   - Diversity: nature and extent of diversity in participants from all groups
3. How will continuous improvement be ensured?
   - How are data on outcomes, effectiveness, and implementation being used?
   - What improvements in outcomes are anticipated as a result?
   - Over time, how can progress and outcomes be documented?

Formative and Summative Data Collection Tools and Methods Related to Project Goals: evaluation plan calls for qualitative and quantitative data collection to support the building of a comprehensive understanding of the proposed model. The evaluation plan specifies the types of documentation/evidence that will be collected in relation to each project outcome and a schedule of data collection, analysis and

feedback. This will allow consortium partners to see progress over time and to direct attention in a timely way to aspects of the initial implementation that do not seem to be effective. Data from all three years will be compiled in a Final Project Report. Specific documentation/evidence that will be collected and analyzed relative to the project Goals and Outcomes include:

Goal 1: The transformed Graduate Program in Teaching will be a model of technology integration in teaching and learning.

Documentation/Evidence of Objective 1.1 Outcomes:

1) Evaluation of course syllabi using agreed-upon rubric**.**
   Goals: Y1 B 50%; Y2 B 75%; Y3 B 100% (annually in spring)
2) Annual posted list of products describing title, use in practice, target audience product type and how to access (these may include edited videotape, postings on MassCue Learning Interchange, units developed by faculty and/or preservice teachers, etc.).(NLT 8/15 each year)

Documentation/Evidence of Objective 1.2 Outcomes:

3) Review of course syllabi (annually in spring), structured interviews with methods instructors (Y 1 & 3).

Documentation/Evidence of Objective 1.3 Outcomes:

4) Lists of team members (each semester), attendance records at team meetings, surveys of participants regarding the value of the process (annual).
5) Annual posted list of six units (titles, target learners, targeted outcomes, types of technology integration, how to access). Units will be evaluated using an agreed-upon rubric to determine the effectiveness of anticipated quality and level of technology infusion. (annually in spring)

Documentation/Evidence of Objective 1.4 Outcomes:

6) Evaluation of course syllabi using agreed-upon rubric (annually in spring).

Goal 2: Preservice teachers will experience technology-rich learning environments in their graduate courses, in seminars, and in K-12 schools.

Documentation/Evidence of Objective 2.1 Outcomes:

7) Surveys of preservice teachers at the beginning, middle, and end of their programs.
   Evaluation of course syllabi using agreed-upon rubric (annually in spring).

Documentation/Evidence of Objective 2.2 Outcomes:

8) Record of electronic forum, analysis of postings to determine collective understanding of effective technology-enhanced teaching and learning (annually in summer).
9) Analysis of lesson plans (collected each semester), observation notes from cooperating teachers and GPT supervisors (collected each semester), postings about practice on electronic forum. (annual analysis).

Goal 3: Preservice teacher graduates will demonstrate attainment of ISTE Educational Technology Foundation Standards for All Teachers.

Documentation/Evidence of Objective 3.1 Outcomes:

Documentation of training and support services offered, skills evaluation instrument will be administered to every preservice teacher one semester into the program.

Documentation/Evidence of Objective 3.2 Outcomes:

Checklist of skill attainment (each semester), curriculum training documents that indicate where skills are expected to be mastered in the GPT (NLT than 12/2000), and structured interviews with individual preservice teachers (annual).

Documentation/Evidence of Objective 3.3 Outcomes:

Evaluation of portfolios using rubric (annual). Comprehensive mapping of kinds and types of mastery of ISTE Standards demonstrated by cohort (annual in summer).

Goal 4: The GPT Program will develop and field test products to implement, institutionalize, and disseminate technology integration efforts in the Graduate School of Education, the College of Arts and Sciences and the partner school districts.

Documentation/Evidence of Objective 4.1 Outcomes:
Usage will be documented (ongoing). Quality and content of postings will be analyzed (each semester).
Evaluation of course syllabi (annual in spring) and survey to faculty (annual in spring).
Surveys regarding use of specific applications (i.e., Mentor, Collaborate, Teachers Helping Teachers) will be given to all participants (annual in spring). Where possible, electronic postings will be analyzed for quality and content (annual in summer).

Documentation/Evidence of Objective 4.2 Outcomes:
Analysis of written feedback on CD exemplars.(Y 2 & 3). Surveys to faculty (Y 2 & 3).
Production of three (3) interactive CDs (Y 3).

3) Innovation Configuration and Practice Profile: The evaluation team will develop an Innovation Configuration and Practice Profile (Loucks & Crandall, 1982), a tool for defining the essential elements of a program and the way it is intended to be implemented. It is often used as part of an evaluation process to complement evaluative criteria related to implementation. The Innovation Configuration and Practice Profile will facilitate communication among consortium partners, provide a mechanism for focusing and monitoring the project, and be an invaluable product for dissemination of the model to others.

4) Determining Usefulness of Learning Technologies in Improving Teacher Preparation: A sustained effort to understand how the project is working, and why certain components or the combination thereof are, or are not, compelling levers for change, will be essential. The goal is to develop a replicable model; to do this, the internal workings of the model, not just its outcomes, must be understood.

To help determine whether the modern learning technologies used in the model are assisting the Consortium to reach its goals for improving the teaching and learning of future teachers, each year six students participating in a variety of GPT program configurations will be interviewed in depth near the beginning and at the end of their programs. The focus of the interviews will be to examine in more depth how they acquired the technology skills and knowledge they have, their understandings regarding technology enriched teaching and learning, barriers, key assistance, and their suggestions for improving the consortium partner report. The transcripts of these interviews will be assembled, analyzed and

reported annually to consortium partners to inform decision-making. They will also be used to raise questions, provide a more robust understanding of other collected data, and to validate other findings.

5) Post-Grant Evaluation: Follow-up evidence of continuing changes in practice must be collected to determine if progress is sustained beyond the actual life of the grant. Federal guidelines state as a performance target for 2002 that 45 percent of program consortia whose federal funding has ended will continue to implement reform in stated, preservice teacher training. An additional performance target is that the number of new teachers who feel very well prepared to integrate education technology in the grade or subject they teach must continuously increase. For the two years following the grant, UML will conduct follow-up surveys to GPT graduates regarding technology integration into teaching and learning in their classrooms. UML will also conduct a review of GPT and A&S syllabi to establish the degree to which technology integration continues to evolve, remains the same or is not sustained. UML will also survey GPT faculty regarding technology integration and will continue to monitor use of the Technology Integration Lab.

6) **Evaluation of Equipment Component**: The Technology Integration Lab -- The following data collection will take place to determine usage levels, purposes, obstacles and benefits toward the stated Year 3 goal of having 80- 90% of all GPT faculty and preservice teachers use the lab at least three times over a given academic year:

Electronic user logs will tally logons and stated user purpose.
Products produced in the lab will be published on an electronic forum.
Specific questions about lab use will be included on surveys and structured interviews
Periodic observation checklists will be filled out by lab staff (3X each semester).

Reporting of Evaluation Results: There will be three key evaluation products as a result of this evaluation process: 1) Annual interim reports (7/31/01, 7/31/02, 7/31/03), 2) Final Project Report (10/31/03) and 3) a completed Innovation Configuration and Practice Profile (10/31/03). These are designed to assist first the consortium partners and then others interested in this innovation configuration as a model for preparing

teachers to facilitate technology-enhanced teaching and learning with their students. Additional products include the data collection instruments and protocols needed to implement the evaluation plan.

Evaluation Contractor: The evaluation will be conducted through a contract with the Center for Resource Management, Inc. (CRM) in South Hampton, NH. CRM has several decades of experience in designing and conducting evaluations of model programs, technology-based initiatives, school improvement efforts, and professional development programs. CRM was a successful grantee for the US Department of Education's Technology in Education program through which it established a statewide Electronic Learning Network. CRM has also worked with more than 10 school districts to design, implement, and evaluate Technology Literacy Challenge Grant Programs. CRM is a major partner in the Northeast and Islands Regional Educational Laboratory at Brown University, with lead responsibility for the LAB's work on standards-based teaching, learning, and assessment.

The organization's capacity in these areas is an important resource for the PT3 project. CRM is currently the evaluator for the University of Massachusetts Lowell Transforming Teaching Through Technology Capacity Grant and has worked closely with UML to develop the Ready to Teach project design. CRM's approach to the Ready to Teach evaluation involves communication and frequent on-site meetings and visits, comprehensive analysis and reporting, development of effective data collection instruments, problem-solving and organization skills and facilitation of an in-depth inquiry process. Evaluation designs and methods used include consumer-oriented design, participant-observation, triangulation of evidence, and documentation of lessons learned for program improvement and dissemination. This design makes it possible to significantly contribute to the design, development and refinement and dissemination of the project as well as measuring and reporting on program effectiveness and impact.

Ready to Teach

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