

PROJECT SUMMARY

Name of Institution (Include Branch/Campus and School or Division) The University of Louisiana at Monroe
Address (Include Department) Department of Mathematics, 700 University Avenue, Monroe, LA 71209
Principal Investigator(s) Maribeth Olberding Dr. Rhonda Adams Jones
Title of Project A Model Classroom for Teaching and Learning Mathematics at The University of Louisiana at Monroe
Abstract (DO NOT EXCEED 250 WORDS)* <p>The ULM Department of Mathematics proposes the establishment of a model classroom for teaching and learning mathematics. Working with the University's PK-16+ Coordinator and committee members, the Department plans to redesign existing courses and to construct new courses to comply with the state's new teacher certification structure and to best meet the needs of our future teachers. The goals of this proposal are (1) to enhance the instructional resources of the Department of Mathematics and (2) to better prepare preservice and inservice teachers to facilitate student learning through a standards-based mathematics curriculum.</p> <p>Mathematics courses required of elementary education majors, including existing courses and courses that will result from certification requirements, will be taught in the model classroom. Instructors for the courses will be mathematics faculty who serve on the PK-16+ Mathematics Redesign Committee and who have experience in delivering reform-based instruction. Mathematics and education faculty members will collaborate in planning their respective courses and will seek to jointly deliver instruction in a team teaching fashion. Faculty will continue to work with local education agencies to deliver professional development programs for their teachers and will utilize the model classroom for delivery of those programs.</p> <p>The model classroom will be equipped with tables and chairs to facilitate cooperative learning, computers that have Internet capability to incorporate real-world applications into mathematics lessons, manipulatives to enhance conceptual understanding, and books of children's literature to develop multi-disciplinary lessons. All of these resources will be utilized to model reform-based instructional techniques for the teaching of mathematics.</p>

**A Model Classroom For
Teaching And Learning Mathematics
At The University Of Louisiana At Monroe**

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A MODEL CLASSROOM FOR TEACHING AND LEARNING MATHEMATICS AT THE UNIVERSITY OF LOUISIANA AT MONROE

THE CURRENT SITUATION

Institutional Description

The University of Louisiana at Monroe (ULM) is a state-assisted, multipurpose, institution of higher education that offers high quality academic and experiential opportunities to meet the academic, cultural, vocational, social, and personal needs of undergraduate, graduate and continuing education students. ULM claims more than 50,000 graduates and an annual enrollment of approximately 9,000 students, including 1,100 graduate students. The University is located in Monroe, Louisiana, and serves a geographic region consisting of 13 parishes, the largest such region served by any institution of higher learning in Louisiana. Included in this region are 173 public schools and 24 non-public schools. They serve a student population of 74,000 with 6,000 teachers. From this student population ULM draws approximately 67 % of its 9,000 students. Degree programs are offered through the Colleges of Allied Health and Rehabilitation Professions, Business Administration, Education and Human Development, Liberal Arts, Nursing, Pharmacy, and Pure and Applied Sciences.

The proposed project solicits resources for the Mathematics Department in the College of Pure and Applied Sciences. The Mathematics Department, with a faculty of 19, provides instruction for students enrolled in all of the University's colleges; however, the students who will most greatly benefit from the funding of this proposal will be the preservice elementary education majors from the College of Education and Human Development. Undergraduate enrollment in the College of Education and Human Development is 1,200; 460 of these students are majoring in elementary education.

Working with the University's PK-16+ Coordinator and the members of the PK-16+ Advisory Council and Redesign Committees, the Department of Mathematics plans to redesign existing courses and to construct new courses as needed to comply with the state's new teacher certification structure and to best meet the needs of our future teachers. Funds secured from this proposal will be used to establish a model classroom for mathematics instruction for elementary education majors.

Rationale for Project

Well over a decade ago, through the combined efforts of both mathematicians and mathematics educators, the national reform movement in mathematics was initiated. Pioneers in that movement recognized the enormity of the task and the broad-based commitment and support that would be needed to make advancements in the teaching and learning of mathematics. Thankfully, those efforts have endured and have even expanded. We have learned much about how people learn and about the benefits of high standards, effective teaching methods, and challenging assessments. Public attention is now focused on education reform, and it is repeatedly cited in polls as a primary area of concern for citizens and policy makers in America.

The evolution of the reform movement in Louisiana parallels the scenario noted in the preceding paragraph. Beginning in the late 80's and early 90's, programs targeted teachers, students, administrators, and public sector partners. Focus has been placed both on K-12 and on post-secondary education. Results of studies have supported the premise that the most direct

route to improved student achievement is through improved teaching. In 1999 the Louisiana Board of Regents and its Board of Elementary and Secondary Education formed the Blue Ribbon Commission for the purpose of improving teacher quality in Louisiana. The Commission was composed of thirty-one state, university, district, school, and community leaders. It was given the charge to recommend policies that would lead to a cohesive PK-16+ system to hold universities and school districts accountable for the aggressive recruitment, preparation, support, and retention of quality teachers who produced higher achieving K-12 students. The commission met from September 1999, to May 2001 and proposed recommendations that were adopted by the Board of Regents as their Guidelines for Teacher Preparation Programs.

Louisiana's PK-16+ initiative exists as a formal entity on each campus that offers teacher preparation programs. It functions under the leadership of a PK-16+ Coordinator with support from Advisory Council and Redesign Committee members representing the University faculty and students, local education agencies, parents, and the community at large. Dr. Dorothy Schween is the PK-16+ Coordinator for The University of Louisiana at Monroe. Under her direction, the members of the Redesign Committee for Mathematics, led by Mathematics Department Chair Dr. Stephen Richters, have met to consider options to improve mathematics-related course offerings for preservice teachers. These offerings include both mathematics and education courses; both colleges are represented on the committee.

Funds for the proposed project will be used to establish a model classroom that will be utilized to provide mathematics instruction for preservice students. The room is located in Hanna Hall, the building that houses most of the classrooms in which mathematics is taught. Included in the room will be trapezoidal tables that will facilitate the use of cooperative learning strategies and computer stations with Internet capability. Funds will also be requested for the purchase of instructional manipulatives and storage units. Computer software, such as Geosketchpad, suitable for providing instruction to preservice students will be purchased as will software suitable for instruction in grades K-8. The Mathematics Department does not own or have access to a projection unit; funds will be requested for this equipment as well.

In this model classroom, designed to facilitate the delivery of standards-based instruction, preservice students will experience mathematics instruction that is worthy of replication. That is, *they will be taught as they should teach*. At present, there are three members of the mathematics faculty who teach the courses that are designed for elementary education majors. The educational background, interest, and expertise of these individuals enabled them to design these courses, including the content and the delivery of instruction. They have been co-participants with faculty from the College of Education and Human Development in I.QUEST, a training program for the integration of technology into instruction and have worked with these Education faculty members to reinforce standards-based pedagogical practices. In addition, these faculty members from the Department of Mathematics have played multiple leadership roles in the design and delivery of professional development programs for inservice teachers. These individuals will be responsible for creating and teaching the additional courses that will result from the PK-16+ charge to redesign the ULM teacher preparation program. Outcomes of preliminary meetings to evaluate the Board of Regents' directives related to teacher certification alternatives indicate that at least two new courses will be needed. Further, it is the desire of these instructors to offer special sections of the introductory college algebra course required of all ULM students for preservice students. Should this grant be funded, it will provide the opportunity for preservice students to experience a coherent mathematics curriculum, both with regard to content and the delivery of that content.

Impact on Existing Resources

In 1994 the College of Pure and Applied Sciences, as part of the Louisiana Collaborative for Excellence in the Preparation of Teachers (LaCEPT) Campus Renewal Project, provided funds to equip one classroom with tables and chairs so that students could actively learn mathematics in a cooperative fashion. Manipulatives were secured through various grant programs, and the room was dedicated for standards-based instruction in mathematics.

Technology resources in this classroom consist of a graphing calculator with an overhead view screen. Upon his arrival as Head of the ULM Department of Mathematics, Dr. Stephen Richters secured College of Pure and Applied Sciences funds to establish a computerized classroom in which instruction in courses at or above the level of calculus is provided. This room is equipped with 16 computers that are loaded with Maple software, chairs that roll and swivel, and an instructor's computer that projects onto television screens mounted on the walls of the room.

These facilities are less than ideal to provide instruction for the University's current preservice students. The dedicated room that was established in 1994 significantly lacks technology resources, and the computerized classroom, already maximally used for providing instruction to students who are non-education majors, is not configured to promote cooperative learning activities. One might assume that a possible solution would be to simply enhance the existing room with computers and software; however, this will not be sufficient. The Blue Ribbon Commission on Teacher Quality recommended and the Board of Elementary and Secondary Education adopted a new teacher certification structure that has an implementation date of July 2002 for the redesigned curricula necessitated by its adoption. This means that the University will be required to offer at least five courses that will prepare future teachers of grades PK-8 to deliver a standards-based mathematics curriculum (the current requirement is three mathematics courses; two are specifically for elementary education majors; the third is required of all students). Certification levels for future elementary teachers will be PK-3, 1-6, and 4-8; the selection of focus areas requiring additional content and/or teaching methodology courses will also be mandated. Four of the five mathematics courses resulting from the new certification structure will be designed specifically for elementary education majors. The fifth course is the one required of all ULM students; however, special sections of this course for future elementary teachers would be beneficial to them and would be possible with the resources that would result from the funding of this project.

Based on the current use of existing facilities and the pending increase in the required course offerings, it is evident that the requested model classroom is a much-needed facility. The new teacher certification structure is a vehicle that should lead to better prepared teachers and better performing students. In order to effectively implement the mathematics curriculum resulting from that new structure, additional resources are needed. (Please also see page 8, paragraph 3 for additional information about existing resources.)

THE ENHANCEMENT PLAN

Plan of Proposed Project

The purpose of this proposal is to secure funds to equip an existing room so that it becomes a model classroom for the Department of Mathematics at The University of Louisiana at Monroe. The goals driving this proposal are (1) to enhance the instructional resources of the Department of Mathematics and (2) to better prepare preservice and inservice teachers to

facilitate student learning through a standards-based mathematics curriculum. In order to achieve these goals, the following objectives and related information are included:

To increase collaborative efforts between Mathematics and Education faculty

At The University of Louisiana at Monroe, College of Education and Human Development faculty teach the mathematics methods course for elementary education majors, and the content courses are taught by mathematics faculty. In addition, an education course, *Application of Instructional Media and Technology*, is a three-hour requirement for all preservice students. One reason this course is included is because of the concern of otherwise documenting for NCATE that students are trained to apply and integrate technology into classroom instruction. It is an intended outcome of this project to have Education and Mathematics faculty work together more closely to develop and deliver instruction to the students for whose educational experiences they are jointly responsible.

The PK-16+ Redesign Committee for Mathematics includes in its membership the individuals who are responsible for the courses described above. Meetings of this committee began in the spring of 2001 and are ongoing at the time of this proposal. Discussions in committee meetings have included the possibility of Mathematics and Education faculty team teaching some of their course offerings, of those same faculty members observing each other's classes, and of the benefits of integrating instructional media and technology into all course offerings and documenting that practice. In addition to offering a better instructional model for future teachers, this could eliminate the necessity of the stand-alone course requirement mentioned in the previous paragraph and free up an additional three hours of coursework that students could use for certification purposes or for electives.

The minutes of the meetings of the PK-16+ Mathematics Redesign Committee will serve to document the pursuance of these options; and, should the practices be put in place, the minutes will also note the mechanisms that will be utilized to verify that the adopted policies will be carried out. It is likely that course syllabi, sample lesson plans, and a classroom observation form would serve as instruments of verification and documentation. Dr. Stephen Richters, Head of the Department of Mathematics and Chair of the Redesign Committee, will be responsible for documenting the activities associated with this objective. Major funding that contributed to the implementation of the PK-16+ initiative came from a state-secured Title II grant—*Louisiana QUEST, Quality Education for Students and Teachers*; the time frame for its funding is from 2001-2004. Hence, redesign committee meetings will be ongoing throughout the course of this proposed project. Minutes will be maintained, and progress toward achieving the objective will be noted.

To model standards-based teaching practices

It is likely that preservice teachers will be able to deliver a standards-based mathematics curriculum only if they have experienced standards-based teaching. Practices recognized as standards-based teaching include discovery learning, problem solving, and cooperative learning. These practices are best implemented in a properly equipped classroom setting that lends itself to varied grouping strategies. Key equipment needs include computers with Internet capability and appropriate software and manipulatives that can facilitate student understanding. However, the equipment is secondary to the individual who will model its use and guide the students to a deeper understanding of mathematics. Currently there are three Mathematics faculty members who teach the courses for preservice students. They are Maribeth Olberding, project co-director,

Virginia Powell, and Jane Wampler. These individuals have selected the equipment to be ordered for the model classroom and will jointly plan for its instructional use.

It is anticipated that, upon notification of funding, equipment can be ordered in June 2002, and the model classroom can be set up prior to the fall semester of 2002. The PK-16+ time frame for redesigning teacher preparation programs has undergone several adjustments and is not currently finalized. It is likely, however, that implementation of the new programs will occur in January 2003. It is true that the greatest benefit by preservice students will be seen with the maximum utilization of the model classroom; however it will be utilized to enhance the current offerings beginning in the fall of 2002. This will also be an opportune time to pilot the previously mentioned team teaching of methods courses by the Education and Mathematics faculties.

Project co-director, Maribeth Olberding, will collect data to document the realization of this objective. Serving to verify success will be the ordering and setting up of equipment, the extent to which the room is utilized, the materials that are selected and developed for classroom instruction, and the reactions of the students to the resources and the related instruction. Documentation will include purchase orders and receiving reports, a schedule of classroom use indicating course and instructor, a notebook of activities and plans for delivering instruction, and the course evaluations of students participating in courses offered in the model classroom.

To expand reform-based instructional practices

Since 1992 Dr. Rhonda Adams Jones, proposed project co-director, has been the director and/or an instructor for approximately 20 funded projects that have included professional development opportunities for preservice, K-12, and post-secondary educators. Two additional projects are currently pending funding notification, and two proposals are in the planning stage. In addition, as director of the University's Teaching and Learning Resource Center, she organizes training and information programs for University faculty. In order to provide the best setting for on-campus technology-centered training sessions, it is necessary to request the use of the Teaching, Learning, and Technology Center's (TLTC) computer lab. The TLTC was placed on our campus with funds that were awarded to the state through the Federal Technology Literacy Challenge Professional Development Grant initiative. The primary purpose for the Center's staff is to provide technology training services to K-12 educators in the immediate and surrounding parishes. The TLTC director is very accommodating and willing to share the facilities; however, requests for use of the lab cannot always be granted. Establishment of the model classroom for which Board of Regents Support Funds is being requested would provide a valuable resource and would significantly ease scheduling conflicts.

Professional development projects for inservice teachers typically consist of a training session in the summer and follow-up sessions during the academic year. Academic year sessions are held on Saturdays and would be easily scheduled for the model classroom. These sessions provide an opportunity for additional teacher training and for planning for implementation of project activities. The most popular training sessions for University faculty have focused on technology. Training sessions for University faculty are typically scheduled as late in the day as possible in order to minimize conflicts with the most popular times for scheduling classes. Since these sessions are planned for ULM faculty, every effort is made to offer them at times when attendance is likely to be greatest.

Expanding the audience of beneficiaries of the model classroom will increase the likelihood of expanded applications of standards-based teaching practices. Further, these

applications will not be restricted to teachers of preservice students or even teachers of mathematics. The University of Louisiana at Monroe promotes and recognizes outstanding teaching and acknowledges its responsibility in helping its faculty achieve excellence in that critical area.

The Teaching and Learning Resource Center will schedule training sessions in the classroom for the fall of 2002. Should planned projects be funded, the academic year sessions associated with them will also be scheduled for the model classroom. Further, the facilities will be offered to directors of other professional development projects for their work with K-12 teachers. Program agendas, attendance rosters, and the room use log will serve to document the expansion of reform-based teaching practices. Dr. Rhonda Adams Jones will be responsible for maintaining this information.

Evidence of Potential to Achieve Recognized Eminence

It has been noted that the primary beneficiaries of this proposal will be students of the College of Education and Human Development. The College offers 14 degrees at the undergraduate level and 17 degrees at the graduate level, including the Doctorate of Education, a cooperative effort with Louisiana Tech University and Grambling State University through the Louisiana Education Consortium Governing Board. In 2000-2001 there were 362 degrees conferred by the College of Education and Human Development. The majority of these students, both graduate and undergraduate, reside in the geographic area. Further, upon graduation, they remain in the area and serve in varying capacities in our local school systems.

Local agencies have come to depend upon the faculty and resources of The University of Louisiana at Monroe for professional development programs for their faculty and their administrators. For example, The University of Louisiana at Monroe has offered dozens of professional development programs through the Louisiana Systemic Initiatives Program (LaSIP). Research has demonstrated that students of teachers who have participated in this successful professional development model outscore other students. Further, scores are higher for LaSIP students regardless of ethnic or socioeconomic background, and students who are African American generally have the greatest test gains.

The education systems served by ULM are located in the delta region of Louisiana, an area that has been acclaimed as one of the poorest in the nation. As a result, funds are beginning to be disbursed to these regions and school administrators are soliciting advice regarding their optimum use. In order to remain in a position in which our expertise is sought, this faculty must continue to develop model programs and make them available to our PK-12 colleagues.

Recent recognition of the University noted its designation as the top ranked state university in Louisiana in teacher preparation based on the 100% pass rate on the 1999-2000 Praxis test. The Praxis I series tests reading, writing, and mathematics skills vital to all teacher candidates. Praxis II assessments measure candidates' knowledge of the subjects they will teach, as well as how much they know about teaching that subject. Accountability is the order of the day in Louisiana; it applies to PK-12 systems and to the universities that work with those systems. The establishment of the model classroom and the implementation of the proposed enhancement plan will boost the University's ability to maintain its outstanding levels of accomplishment.

Impact on Curriculum and Instruction

The pending impact on curriculum offerings is not a result of this project; rather, it is a result of the PK-16+ initiative to redesign teacher preparation programs. The most significant impact offered through this proposal is on the improvement of instruction. The materials and resources that are being requested to establish a model classroom for teaching and learning mathematics will make possible the delivery of standards-based instruction. Noteworthy features of the proposed method of instruction include the integration of technology, the utilization of instructional resources such as manipulatives and children's literature, and the promotion of instructional practices such as discovery learning and cooperative learning. Proposed collaborative efforts between Education faculty and Mathematics faculty will lead to a more cohesive course of study for preservice majors and to the exchange of successful instructional practices among faculty members. Conducting training sessions for university faculty will contribute to the likelihood of their choosing to integrate technology applications into their classroom instruction. The impact on instruction at the PK-12 level will evolve from the utilization of the model classroom as a site for professional development projects. University faculty conducting those projects will be able to model standards-based instructional practices for teacher participants and to support them in their efforts to implement those practices in their classrooms.

The purpose of the PK-16+ initiative is to create a seamless transition for education in Louisiana. The goal of Louisiana's reform efforts in mathematics is to systemically reform and improve the teaching and learning of mathematics. This proposal, through its potential impact on University students and faculty, on inservice teachers, and, through these educators and future educators, on the school children of the Louisiana delta, embraces the spirit and desired outcomes of both of these significant educational movements.

Impact on Quality of Students

The majority of educators for schools systems in northeast Louisiana complete their training at The University of Louisiana at Monroe. Yet it is an ongoing goal of the University to attract quality students to the teacher education program, particularly in light of the current shortage of certified teachers. The facilities and teaching methods offered in this proposal will complement and enhance existing and future efforts to attract quality students to the field of teaching. These efforts include freshman orientation and campus tour sessions, career counseling offered through the University's Center for Academic and Student Success (CASS), and a planned Teacher Cadet program at Neville High School, one of the University's professional development schools.

It is anticipated that many individuals will consider teacher preparation as a result of the alternative certification programs that are part of the PK-16+ initiative. These non-traditional students will likely be receptive to the resources made available through this proposal and the special efforts toward enabling them to understand and teach mathematics.

Finally, given the systemic nature of the education process, a positive impact on students will be felt not only by the University students who receive instruction in the model classroom but the impact will also be felt by the students of inservice teachers who participate in professional development programs in the new facility. And, eventually, many of these students will enroll in The University of Louisiana at Monroe, perhaps in a teacher preparation program!

Impact on Faculty Development

Discussions have already begun regarding the possibility of team teaching mathematics methods and content courses for preservice teachers. Should this proposal be funded and the model classroom established, it would be a catalyst for the realization of the team teaching arrangement. Such an arrangement would be beneficial for faculty from both colleges, providing them the opportunity to learn from each other and to gain a greater appreciation for the knowledge and expertise of each group. The greatest beneficiaries, however, would be the preservice students who are clients of both sets of instructors. Connections between methods and content could be pointed out and reinforced, thereby better preparing these students for their experiences as classroom teachers.

The Teaching and Learning Resource Center is recognized as the primary organization for facilitating faculty development initiatives at The University of Louisiana at Monroe. Please recall that the proposed co-director of this project, Dr. Rhonda Adams Jones, is the director of the TLRC. The additional resources provided through the model classroom will greatly enhance the delivery of professional development programs, particularly with respect to technology training. Also noteworthy is the fact that conducting training sessions in the model classroom will create an awareness of the other reform efforts it houses and thereby plant the seed for additional collaborative endeavors.

EQUIPMENT

Equipment Request

Work Stations

Each workstation will house one PC for every 3 students; a total of 12 student PC systems and 1 teacher system are being requested. The PC will be a P-4 running at 1.7 mhz or better, 256 mb of RAM, zip drive, 32 mb video, sound card and speakers with a CD-Rom R-RW, and a 17 inch viewable SXGA LCD. Three laptop computers (for example Dell Latitude C810) would be provided for faculty members directly involved in the preparation of teachers (both in-service and pre-service) to enable them easier access to software both in their offices and labs. The laptops would also be used for the many in-service projects that these mathematics faculty do for the surrounding parishes in the northeast Louisiana area. The proposed configuration was modeled after an existing classroom at Louisiana Tech University. The three instructors of the mathematics courses for preservice teachers participated in I.QUEST, a technology-training program that was held in the Tech classroom and were pleased with the technology resources and the instructional methods for which it provided. The computers were chosen in order to maximize the space in the room and at the workstations themselves. Zip drives will allow the students to bring in their own zip disk so that they can easily transport their projects and presentations and obtain copies of classroom demonstrations.

(budget page 20)
\$42,900.00

To facilitate “real world” connectivity, hard copy output is crucial. One color laserjet printer should serve the major needs of students using the classroom/laboratory. The purchase of multiple inkjet printers was considered; however, based on the size of the classroom and the necessity of speed and quietness, the laserjet was selected.

(budget page 20)
\$2,000.00

Display Units

A white board, along with two projection screens and two overhead projectors on carts, will be added to the set up of the classroom. The white board will serve both as a screen onto which images may be projected by way of a multimedia projector and as a dry-erase chalkboard. Two overhead projectors and screens are needed so that the viewscreen of an overhead calculator can be displayed concurrently with an overhead transparency explaining the image of the calculator. Chalkboards were already in the classroom but do not serve a dual purpose as the white board does. The dust from chalkboards is also not recommended for the upkeep of computers and technology equipment.

(budget page 20)

\$8,543.00

The purpose of the document projector is to facilitate the use of literature, newspaper or other documents that are not easily scanned in or found on the web in a form that can be adapted for viewing by an entire class. It enables a teacher to display a handout or other resource materials that, when made into transparencies, becomes less effective.

(budget page 20)

\$1,500.00

Two large screen television/computer monitors will be mounted in two places within the room to offer students a clearer view of the onscreen action. Typically these screens will contain the same image that is on the display panel, but they may be configured to receive other input as the situation dictates. These monitors will be mounted and hung from the ceiling at strategic locations. Two television/computer monitors are in the other mathematics computer lab and this is a helpful means of displaying the teacher's onscreen images.

(budget page 20)

\$2,000.00

Participation in I.QUEST provided the opportunity to note how a program called Mimio, in conjunction with a white board, provided for the ability to demonstrate mathematics problems on the web and throughout the classroom. Utilizing special equipment, the dry erase markers write on a specified area of the white board, then the mathematics is saved as an animated gif file that can be transported to every workstation or placed on the instructor's web page or Blackboard site. Mathematics is a difficult subject to show on the web, and this program makes it possible. Mimio is available in both a standard program and a converter program. The converter program has been chosen since it is more efficient and utilizes the white board that is being requested above.

(budget page 20)

\$540.00

A standard videocassette recorder will allow presentation of video in the classroom setting. This equipment will be used to display videos that will be purchased to enhance the instruction in the classroom.

(budget page 20)

\$200.00

Communication

Full Internet connectivity for all stations is paramount for maintaining a technologically current lab. The use of a wireless technology gives students exposure to the latest technology while also keeping the workstations streamline. The importance of being able to contact people and places throughout the world and exchange information cannot be overestimated. Total access for all stations would not only enable students to follow a teacher-led demonstration using the Internet, but it would also allow students to pursue individual avenues of research. A wireless Internet hub is requested to configure the classroom in this fashion.

(budget page 21)
\$3,200.00

Instructional Materials and Software

Participation in technology-related training programs and experience in providing instruction to preservice and inservice teachers contributed to the selection of the items requested below:

Software appropriate to the needs and wants of educators using the lab should be obtained in a timely and complete fashion. To best use the installed hardware, current, user-friendly software that is relevant to the needs of users is essential. Geosketchpad, Inspiration, Powerpoint, and Tesselmania are some of the programs being considered for purchase.

(budget page 21)
\$3,000.00

Digital Cameras are now becoming useful in helping to make mathematics more connected with the real world. Teachers often send students to find examples of geometry and measurements found in nature and our everyday surroundings. The Mathematics Department has no digital cameras.

(budget page 21)
\$2,000.00

Interdisciplinary instruction is becoming a vital component to the education curriculum. The National Council of Teachers of Mathematics notes that the communication of mathematics is a strong and real-world skill that should be incorporated into today's mathematics classrooms. For this reason, appropriate literature and corresponding materials are requested as a resource to promote the development and delivery of interdisciplinary lessons.

(budget page 21)
\$2,000.00

Various types of manipulatives have been acquired through grant programs over the past 10 years. Complete sets of grade-appropriate materials are still needed, however. An inventory and evaluation of current resources will precede the ordering of new materials.

(budget page 21)
\$2,000.00

Furniture

The requested furniture will facilitate the establishment of a setting that will accommodate cooperative learning activities. Mathematics educators favorably recognize collaborative learning practices, but current campus resources are less than ideal for conducting such instructional practices. The 12 trapezoidal tables and 36 chairs will be placed to form hexagonal tables. At each hexagonal table there will be two computers for every six students. In addition, two utility tables will be needed to house the printers. Rectangular tables were considered but were deemed to be less conducive to the establishment of the intended cooperative learning setting.

(budget page 21)

\$4,788.00

Reform-based teaching practices require attention to planning and organization. Storage equipment for manipulatives can contribute to a better-organized classroom and more efficient delivery of instruction. Manipulative storage sets with carts and a locking storage cabinet are being requested in order to organize and to secure instructional resources.

(budget page 21)

\$1,300.00

Equipment on Hand for Project

Current equipment available in the Mathematics department was described in a previous section. Note was made that the equipment is limited and is being fully utilized. Equipment purchased in the summer and fall of 2001 will be available for use in the model classroom. One of these purchases is a color scanner capable of transforming text, graphics and transparencies into computer readable data; this will enable students to incorporate various media objects into presentations or projects. A laminating machine that preserves samples of preservice and inservice teachers' work is also readily available. The number of computers being requested, along with the number of computers already owned by the mathematics department, does not exceed the maximum allowed for certain site licenses owned by the department. These licensed programs will be made available on the workstations in the model classroom. Manipulatives acquired from previous LaSIP grants will also be incorporated into the classroom.

Equipment Housing and Maintenance

The equipment will be housed in an existing room in Hanna Hall on the campus of the University of Louisiana at Monroe. Initially the equipment will be covered by warranties. When these expire the Mathematics Department is required to enter into a maintenance agreement with the University's Graphic and Technical Services. This contract is paid from the department's budget at an approximate cost of \$4,000 per year.

FACULTY STAFF AND EXPERTISE

Co-directors of the proposed project are Maribeth Olberding and Rhonda Adams Jones. Mrs. Olberding, an instructor in the Mathematics Department who teaches preservice students, serves on the PK-16+ Mathematics Redesign Committee and has been instrumental in planning

the revision of existing courses and the development of new courses to comply with certification directives and to best meet the needs of ULM students. Mrs. Olberding has been a co-director and an instructor for several professional development programs delivered to regional inservice teachers. Her educational background is in mathematics education as are her interests for future endeavors. She recently organized for ULM students a chapter of Kappa Mu Epsilon Mathematics Honor Society and serves as the chapter's sponsor. Dr. Jones is an Associate Professor of Mathematics and Education and the director of the University's Teaching and Learning Resource Center. She was the director of the LaCEPT-funded Campus Renewal Project, through which special mathematics and science courses for preservice teachers were designed; she has been the director and/or instructor for many professional development projects for area inservice teachers; she serves on the ULM PK-16+ Advisory Council and Mathematics Redesign Committee; and she was the director of the December 2000 campus-based mini-conference that served to review and plan for the changes regarding teacher preparation programs.

Dr. Stephen Richters is the chairman of the ULM Department of Mathematics. Dr. Richters has been supportive of reform efforts and has granted faculty release time for work in this area, has offered special classes to assist inservice teachers in their certification efforts, has conducted technology workshops for inservice teachers, and has supported the development and approval of classes for preservice students. Dr. Richters is the chair of the PK-16+ Mathematics Redesign Committee, and he is a past member of the TLRC Advisory Committee. He will oversee the installation of the equipment for the model classroom and will schedule its use for courses, University faculty workshops, and inservice professional development projects.

Virginia Powell and Jane Wampler are members of the mathematics faculty who deliver instruction to preservice students. They have been instructors and/or directors of professional development projects for inservice teachers and have been instrumental in the redesign efforts for preservice mathematics courses. They contributed to the design and selection of resources for the model classroom, and they will work together with Mrs. Olberding to design lessons and activities for the courses that will be housed in the classroom. Powell, Wampler, and Olberding have themselves participated in a training for technology integration program and have all served as instructors for the National Faculty.

Dr. Dorothy Schween is the ULM PK-16+ Coordinator. Dr. Schween assumed this position in January 2001 and has worked to organize the various redesign committees and to oversee their work as it relates to the teacher preparation program. She has participated in the mathematics redesign meetings and is aware of the options for courses and course delivery that have been put forward. Under her leadership, a final decision will be made regarding requirements for certification as a preservice teacher.

ECONOMIC AND/OR CULTURAL DEVELOPMENT AND IMPACT

Relationships with Industrial/Institutional Sponsors

The proposed project will strengthen existing relationships with local education agencies in that the facilities will be used for classes and workshops for inservice teachers. A special effort will be made to utilize the facility for faculty of the University's two professional development schools and to establish a relationship with the participants in the Teacher Cadet program. This facility, given that it is being designed for the delivery of reform-based mathematics instruction, will enhance future grant proposals. Two such proposals are being

considered now. Requests from area teachers have revealed a need for two programs—one for K-8 teachers of mathematics and one for secondary teachers. The Louisiana Systemic Initiatives Program has a request for proposals scheduled for release in October that will accommodate these requests. Notification of funding regarding this model classroom proposal should be received prior to the deadline for the submission of the proposals mentioned above.

Promotion of Economic Development and/or Cultural Resources

The sad condition of education in Louisiana has been cited as reason for businesses, industries, and individuals to choose to not locate here. In particular, the delta region, which is served by The University of Louisiana at Monroe, has received notable attention as being the poorest in the nation. Any efforts that result in the enhancement of educational opportunities for students, PK-16+, will ultimately positively impact the region and the state. Short-term benefits will be immediately recognized by preservice and inservice teachers and some local school children. However, the impact of the project will be even greater in the future when consideration is given to the number of students that will ultimately be influenced by these present and future educators.

ADDITIONAL FUNDING SOURCES

The Department of Mathematics will provide the resources for installing, housing, and maintaining the requested equipment. Faculty members have dedicated their time to plan, develop, and submit this proposal. Likewise, should funding be granted, they will dedicate their time to set up the classroom and install the equipment. Should future professional development projects for area inservice teachers be funded and courses be taught in this facility, the University will waive the tuition and fees costs for those teacher participants. Likewise, should for-credit offerings for University faculty be held in this facility, the University would waive all fees for those courses.

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PREVIOUS BOARD OF REGENTS SUPPORT FUND AWARDS

During the 1996-1997 cycle of funding, Dr. Rhonda Adams Jones received Board of Regents Support Funds for a project she co-directed with Dr. Peggie Jelks. The title of the project was *A Computerized Classroom for Teacher Preparation at Northeast Louisiana University*. The amount of the award was \$112,250. As a result of this project, resources including wiring, audiovisual equipment, software, display units, workstations, furniture, and other instructional materials were supplied for the College of Education and Human Development. In addition, faculty inservice programs for integrating technology into course activities for preservice teacher experiences were conducted.

The classroom that was equipped for the College of Education and Human Development in 1996 is primarily used to deliver instruction for the instructional media and technology course that is required of all education majors. The new classroom will be for mathematical instruction of elementary education majors and will also be equipped with non-technology instructional resources such as manipulatives and children's literature books. Preservice students will be generically trained to use the technology in their education course offering and will experience model mathematics instruction, including technology integration, in the newly equipped classroom.

BOARD OF REGENTS SUPPORT FUND
 ENHANCEMENT PROGRAM, FISCAL YEAR 2001-02
 BUDGET
 PROJECT YEAR (CIRCLE ONE):

1 2 COMPOSITE

Title of Proposal: A MODEL CLASSROOM FOR TEACHING AND LEARNING MATHEMATICS AT THE UNIVERSITY OF LOUISIANA AT MONROE

Principal Investigator(s): Maribeth Olberding and Rhonda Adams-Jones

Institution(s) of Higher Education: The University of Louisiana at Monroe

I. PROPOSED BUDGET:

	Support Fund Money Requested	Institutional Match*	Private Sector/ Other Match**
A. Equipment	\$ <u>60,883.00</u>	\$ _____	\$ _____
B. Software	<u>3,000.00</u>	_____	_____
C. Supplies	_____	_____	_____
D. Shipping/Handling 3%	<u>2,279.13</u>	_____	_____
E. Installation	_____	<u>16,000.00</u>	_____
F. Personnel Training (including fringe benefits)	_____	_____	_____
G. Other Expenses (Identify)			
1. Instructional Materials	<u>6,000.00</u>	_____	_____
2. Furniture	<u>6,088.00</u>	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.(etc.)	_____	_____	_____
H. Indirect Costs	NOT ALLOWED	_____	_____
I. Maintenance	STRONGLY DISCOURAGED	<u>4,000.00</u>	_____
J. Total Costs (A through I)	\$ <u>78,250.13</u>	\$ <u>20,000.00(in kind)</u>	\$ _____

*Stipulate whether in-cash or in-kind. The Board strongly encourages the sharing of costs for proposed projects. Applicants and university officials should note, however, that the employing university will be required to honor the commitments made in the original proposal before Support Fund money will be awarded. Discounts received for equipment purchases are not allowable as institutional match.

**The budget page(s) must reflect and the budget justification page(s) must explain any external funds that are claimed in the proposal. These funds must be itemized and their expenditure accounted for in the same manner as Support Fund money and institutional match.

II. BUDGET JUSTIFICATION:

Item No.	No. of Units	Item	Unit Cost (est.)	Total Cost (est.)
Work Stations			Totals = \$44,900.00	
1	13	PC Computer Systems including keyboard and monitor	\$2,700.00	\$35,100.00
2	1	HP Color Laserjet Printer	\$2,000.00	\$2,000.00
3	3	Dell Latitude C810 Lap Top Computers	\$2,600.00	\$7,800.00
Instructional Display Unit			Totals = \$12,783.00	
4	2	Overhead Projectors	\$425.00	\$850.00
5	2	Overhead Screens with 72 in diagonal	\$222.00	\$444.00
6	2	Overhead Carts with electrical assembly	\$206.00	\$412.00
7	2	Overhead Manipulative Organizers	\$15.00	\$30.00
8	1	White board	\$212.00	\$212.00
9	2	Large Screen TV Monitor	\$1,000.00	\$2,000.00
10	1	Document Projector	\$1,500.00	\$1,500.00
11	1	Mimio White board with Carry Case	\$540.00	\$540.00
12	1	Multimedia Projector	\$6,595.00	\$6,595.00
13	1	VCR	\$200.00	\$200.00
Communication			Totals = \$3,200.00	
14	1	Internet Hubs	\$800.00	\$800.00
15	16	Wireless Internet Cards	\$150.00	\$2,400.00
Instructional Materials and Software			Totals = \$9,000.00	
16	4	Digital Cameras	\$500.00	\$2,000.00

17	1	Multimedia Instructional Materials including content specific software, CD-Roms and Videos	\$3,000.00	\$3,000.00
18	12 sets each	Books for the integration of Literature into the Mathematics Classroom	\$2,000.00	\$2,000.00
19	12 sets each	Manipulatives	\$2,000.00	\$2,000.00
Furniture			Totals = \$6,088.00	
20	12	Trapezoidal Tables	\$135.00	\$1,620.00
21	1	Locking Storage Cabinet	\$300.00	\$300.00
22	2	Utility Tables	\$100.00	\$200.00
23	4	Manipulative Storage Sets including Cart	\$250.00	\$1,000.00
24	36	Maroon Chairs with no arm rests	\$79.00	\$2,844.00
25	1	Maroon Chair with arm rest	\$124.00	\$124.00
Maintenance-Departmental Match			Totals = \$20,000.00	
26	20	Computers and Printers	\$200.00	\$4,000.00
27	1	Installation		\$16,000.00
Shipping			Totals = \$2,279.13	
28	1	3% of \$75,971.00		\$2,279.13

III. FUTURE FUNDING PLAN:

We do not anticipate needed a future funding plan. As stated previously above, the Mathematics Department along with the University has plans already set for the maintenance of the equipment once warranties have expire.