Community of Practice: **The Use of Personal Response System Technology in Large Lectures**

Project Category: Strategic Initiative Grant

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University of Massachusetts Amherst
Total Amount of Budget: $25,000

Project Summary

Through a joint effort of a number of offices that support undergraduate education, instructional technology and faculty development, we propose a year-long community of practice program for faculty who use the Personal Response System (PRS) Technology in Large Lectures. Following a successful faculty fellowship model on the UMass Amherst campus, we will create a PRS Community of Practice with instructors from various disciplines who are currently designing and teaching large lectures with PRS. Our goal is to work collaboratively with faculty members to create consistent principles and instructional strategies for large lecture courses, to "seed" development skills in a wide range of disciplines, and to share the unique products of this community of best practices with faculty from all five UMass campuses. The knowledge and practices generated by the community of practice will be translated into resource materials available via a Web-based user's forum. In addition, the project will create a cross-campus community of undergraduate education course instructors and other experts who can continue to share ideas and support each other well past the PRS community of practice year.

Director, Center for Teaching: _____

Associate Provost for Faculty Development: _____

Provost: _____

Project Narrative

Increasingly, instructors on the UMass Amherst (UMA) campus who are teaching large lectures (i.e., sections of 150 to 500 students) are turning to instructional technologies such as the Personal Response System (PRS) to help engage students in their learning. From both practice and research evidence, we know that students learn best when they are actively involved in the process of instruction (Chickering & Gamson, 1987). Students working in active learning settings learn more, retain knowledge longer, and express greater satisfaction with the learning experience when they receive timely feedback and interact with the same content in different instructional formats (Weimar, 2002).

Large lecture classes are perhaps the most challenging settings in which to apply these principles of student-centered learning, yet due to budgetary and staffing considerations, they are likely to remain a feature of higher education into the foreseeable future. Consequently, a host of recent national reports have challenged college and university faculty to develop instructional approaches that can transform students from passive listeners to active learners in these environments (Carini, Kuh and Klein, 2006; Kuh, Kinzie, Schuh and Whitt, et al., 2005; and Spence, 2001).

Over the past three years the UMA campus has benefited as a recipient of a Large Lecture Course Redesign Project grant (2004 – 2007) provided by the Davis Educational Foundation. As a part of this Davis Grant, ten departments and over 25 faculty members were involved in redesigning large lecture courses to include the use of technology. Many of these faculty members found it helpful to incorporate use of the PRS as a way to engage students in active learning and provide timely feedback. In the fall 2006 semester alone, 28 classes across 15 departments used the PRS in large lectures. (Collectively, there were over 6,692 students enrolled in these classes.) In spring 2007, 33 classes from 13 departments and over 3,433 students used the PRS in classes. To date, instructors in at least seven of the eleven schools and colleges at UMA have adopted the PRS in their curricula. These subject areas include: the sciences (Chemistry, Physics); professional schools (Mechanical Engineering, Accounting, and Information Systems); the natural sciences (Plant and Soil, Biology); social sciences (Political Science); natural resources and the environment (Resource Economics); and the humanities and fine arts (English, History and German).

What we have learned from a study of these early efforts is that faculty who incorporate the PRS benefit most from institutional support that combines ongoing pedagogical training as well as an understanding of the technical functions required in successfully integrating

technology into large courses. Additionally, many first-time as well as veteran users reported that the most daunting challenge for faculty to effectively use the PRS in class is developing a well thought-out instructional plan suited to the capabilities of the technology. Such a plan encompasses a fundamental shift from a teacher-centered to a student-centered teaching approach. Based on student survey data gathered at UMA, it is clear that technology, if not well integrated, can be perceived by students to be a burden. For example, if students perceived that the PRS was used only for tracking attendance (rather than as a learning tool), faculty members saw a drop in student evaluation scores.

The PRS Community of Practice

The Center for Teaching, in collaboration with the Provost's Office and the Computer Educational Software Development Office (formerly CCBIT), seeks a $25,000 grant to undertake a multifaceted and innovative program, the *Personal Response System Community of Practice.*

Drawing from a faculty fellowship model and a Tablet PC Community of Practice program that have been immensely successful on the UMA campus, we will gather together "early adopters" as well as "late adopters" from across the disciplines who are currently designing and teaching large undergraduate courses using the PRS to participate in this Community of Practice. Together with teaching and technology support service providers from across the campus, we will identify and address the pedagogical and technical challenges in the design, implementation, and delivery of the PRS supported student-centered learning experiences in the context of large lectures.

The goal of this PRS Community of Practice is to work collaboratively with faculty members to create consistent principles and instructional strategies for large lecture courses, to "seed" development skills in a wide range of disciplines, and to share the unique products of this Community of Practice with faculty from all five UMass campuses. A key component of the seminar structure will be the inclusion of both instructional and assessment-related activities in PRS question design and implementation. In this way, we hope to facilitate a more complete understanding of the pedagogical techniques most effective in promoting and understanding student learning in general education courses. Participating faculty will also engage in cross-campus conversations with other UMass faculty to share ideas and resources.

Nationally, our PRS Community of Practice promises to serve as a model for large, multi-campus university systems that wish to support faculty members in providing their

students with active learning experiences that are not only technologically sophisticated, but also thoughtfully centered around teaching, learning, and qualitative assessment. Consistent with the CFT's belief in sharing information, organizational knowledge, and best practices as widely as possible, we intend to disseminate the results of this program to our colleagues at other universities through online formats, professional development organizations, and presentations.

We believe that our project is highly consistent with the intentions of the President's Office Instructional Technology Fund goal to "improve access to exemplary educational content for schools, colleges and universities, and individuals throughout the world by using information technology." Moreover, we believe that our project is a unique opportunity to foster a critical dialogue to ensure the highest possible quality of undergraduate education not only at the UMA campus but also throughout the UMass five-campus system.

Project Deliverables

- Creation of a diverse cohort of faculty from across the disciplines to foster a collegial, supportive environment through regular meetings in which participants can share their experiences in the classroom and assist each other in developing "new" best practices that improve learning in large lecture settings.
- Pedagogical and technological support for participants as they work collaboratively to create discipline-specific PRS applications within current and new courses (for example, constructing good questions).
- Development of course evaluation instruments that help faculty members assess the effectiveness of PRS teaching and learning.
- Translation of the knowledge and practices generated by the Community of Practice into resource materials available via an online user's forum.
- Collaboration with the Computer Educational Software Development Office (UMA) to assist faculty in the integration of the PRS and related technologies, i.e., OWL and WebCT.
- Collaboration with the Provost's Office in the coordination of classroom resource allocations, instructional supports and technology facilities.
- Contribution to UMA General Education initiative on at least three levels: 1) helping individual faculty members develop the knowledge and expertise necessary to create and implement effective questions for promoting active learning in classes; 2) offering the opportunity for a number of UMA offices to collaborate in the delivery of undergraduate

education courses; and 3) creating a network of "experts" in teaching large lecture courses with technology who can work with other instructors.

Dissemination of Project Results

- Dissemination of the collected best practices through print and web-based modes designed to engage faculty members from across disciplines and campuses in the University of Massachusetts system.
- Contribution to a system-wide climate that expands the use of beneficial interactive instructional technologies in our undergraduate classrooms in large lecture settings.
- A half-day conference that brings together instructors using PRS technologies in large lecture settings from all five campuses of the University of Massachusetts system (Amherst, Boston, Dartmouth, Lowell, and Worcester).
- Implications for undergraduate education system-wide, such as the identification of cross-disciplinary learning goals and objectives, the creation of and piloting of good questions for effective instruction and assessment, and creation of a multi-campus community of General Education instructors and others who can continue to share ideas and support each other well past this year.

Project Budget

Seminar Series			
Faculty Moderator Stipends	2	4,000	8,000
Radio Frequency Receivers	10	200	2,000
Laptop (1 Mac to resolve issues)	1	2,000	2,000
Resource Library/Website			4,500
Seminar Lunches	8	400	3,200
Admnistrative Support	1	2,000	2,000
Technical Support	1	2,000	2,000
Final Conference/Booklet		1,300	1,300
Total Budget			**$25,000**

Project Timetable

During the fall and spring semesters, the PRS Community of Practice program will invite new and current PRS users to participate in regular seminars moderated by two distinguished faculty members who have successfully integrated the PRS into their classrooms. Throughout the

year, we will develop a web-based forum to facilitate further dialogue and exchange of best practices among PRS users.

Principal Investigator, Participants and Qualifications

The offices making this proposal combine many years of experience working with faculty on pedagogy, undergraduate education and instructional technology. Over the past eighteen years, the Center for Teaching and the Provost's Office have sponsored four year-long teaching development fellowship programs to cultivate teaching excellence. They are: the Lilly Teaching Fellows Program (junior faculty), the Teaching and Learning in the Diverse Classroom Project (TLDC), the TEACHnology Fellowship Program (senior faculty), and the Hewlett Teaching Fellowships (senior faculty who teach General Education courses). CFT was also the recipient of the IT Professional Grant in 2001 from the President's Office, along with the CCBIT, Continuing Education Office and Office of Assessment, to develop a year-long system wide *Online Instruction Fellows Program.* Each of these programs uses a model similar to what we propose. The Provost's Office supports many teaching improvement initiatives on the Amherst campus. The strong record of the Provost's ongoing commitment to quality undergraduate education has helped convince the Davis Foundation to invest substantial funding to the Amherst campus twice in the past three years to support individual departments to redesign large courses that utilize technology. The Center for Educational Software Development office works with faculty to develop effective instructional software for use in the undergraduate curriculum. CESD developed the Online Web-based Learning system (OWL) which is used successfully by over 20,000 seats each year on the Amherst, Dartmouth and Boston campuses. OWL has been licensed by Thomson Learning for use in traditional and distance chemistry classes nationwide, starting in the fall of 2001, and to over 75,000 users nationally.

References:

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