

Essential Collaborations for Large Course Redesign  
Dorothy Muller, East Carolina University  
Dorothy Clayton, East Carolina University  
Joyce Joines Newman, East Carolina University  
David White, East Carolina University  
Larry Bolen, East Carolina University  
Clement Handron, East Carolina University  
Jennifer Raby, East Carolina University  
Kathryn Weegar, East Carolina University

East Carolina University's (ECU's) large enrollment course redesign projects required the building of connections among campus offices. A collaborative, interdisciplinary team of instructors, administrators, instructional technologists, and IT personnel redesigned HLTH1000 and PSYC1000, the first and fourth largest enrollment courses at ECU, replacing labor with technology while maintaining educational excellence.

We used two very different models for the project to present materials in varied learning formats, provide timely feedback, and encourage active learning. Redesigned sections of 230 psychology students taught by one instructor and supplemental student instructors, and 2,100 health students taught by a team of four master lecturers and graduate assistants, incorporated technologies including mastery quizzes, online lectures, audiovisual animations, and dramatizations. Redesign of HLTH1000 was implemented for all sections in Fall 2006. Fall 2006 revisions to the PSYC1000 redesign produced improved learning and D, F, W rates that declined dramatically.

## PREPARING TO REDESIGN

East Carolina University is facing a number of pressures, as are many of our sister institutions, which have made large enrollment courses not only more attractive but also necessary. While the university has had in the past a few large enrollment courses, it faces the prospect of many more. ECU would like to deliver these courses more effectively in spite of the pressures of increasing student enrollment, decreasing state resources for instruction, and taking advantage of the opportunities provided by technology. The university's student enrollment is growing very fast, but the number of faculty positions has not grown at a comparable rate. Space is very tight on the campus, and large capacity classrooms are rare. To accommodate the anticipated growth in the number of students, the university needs to find ways to place more students in its classrooms.

Both of the courses chosen are high-demand courses as measured by student enrollment, so redesigning these courses affects many students. In addition, both departments are stretched to service these large introductory courses and meet their other undergraduate and graduate course needs. One of the courses, PSYC 1000, has an unacceptably high D, F, W rate and is one of the courses of concern as the university addresses retention.

As a participant in the second wave of the Road-Map-To-Redesign initiative organized by the National Center for Academic Transformation (NCAT), the university began the redesign process by completing studies of institutional and course readiness. We would strongly recommend that any university doing large enrollment redesign engage in similar studies. For those interested in the format used by NCAT, readiness questions can be reviewed at <http://www.center.rpi.edu/PlanRes/Readiness.htm> .

At the institutional level, there is a basic infrastructure that needs to be in place prior to the redesign. The university also needs to be committed to learner-centered education and to providing needed financial and technical support for the redesign. In regard to course readiness, the key elements are buy-in to the project by the department and faculty members; faculty members with the skill levels necessary for success in the project; the existence of faculty members with the content, teaching, and technical skill levels necessary for the project; a clear identification of problems to be solved; learning outcomes and how they will be measured; and campus commitment to a team approach for the redesign project.

At ECU, the team was composed of members from the following:

- Academic Affairs
- College Administration
- Department Administration
- Faculty
- College Instructional Technology Consultants
- ITCS (Information Technology and Computer Services)

- Academic Outreach (Blackboard Administration)
- Facilities
- Institutional Planning and Research
- Registrar
- National Cohort of Previous University Participants in Redesign

#### REDESIGN OF HLTH1000—“HEALTH IN MODERN SOCIETY”

“Health in Modern Society” is a required two-semester-hour course. The Department of Health Education and Promotion conducted two pilot terms for its redesign, varying the delivery of the master class lecture prior to full implementation of the redesign in the Fall 2006 semester. The initial pilot involved a large face-to-face lecture and small break-out groups each once per week. There was not support for this type of delivery due to lack of large classroom space and dissatisfaction among the instructors and students. The second attempt at redesign involved a hybrid delivery of the course. Students participated in a master class lecture via Blackboard one day per week and a face-to-face breakout session (twenty-five students per class) one day per week. The hybrid delivery was implemented on a small scale in Spring 2006 with four master teachers piloting the new design. The pilot was very successful, so the department implemented the redesign for all 2000+ students enrolled in Fall 2006. The design increased the enrollment in master classes by 44 percent with a corresponding reduction in space and instructors needed.

From the department’s perspective there were several keys to successful redesign.

- Administrative support
- Faculty expertise in online instructional delivery
- Faculty support for more standardized course delivery
- Need to better utilize classroom space
- Need to better utilize instructional resources

Students in this course were of young college age (62.5 percent were eighteen to nineteen years old) and most were freshmen (56.9 percent).

The redesign realized a number of expected benefits, including more efficient use of classroom space, more efficient use of funding for instructional personnel, and more standardized presentation course content. GTAs delivered a reduced amount of the course and first-year GTAs received increased training. The redesign allowed for smaller face-to-face breakout session size that enhanced instructor-student relationships and promoted the trust that is important for the discussion of sensitive personal health topics. Student perceptions of HLTH1000 have been positive. There was concern that the redesign might lower those views. Such concerns were unfounded as Table 1 indicates.

Table 1. Comparison of Student Perceptions of HLTH1000 Before and After Implementation of Large Enrollment Sections, Spring 2005

	Spring 2005 (N=73)	Fall 2005 (N=148)
Improved My Knowledge percent strongly agree/agree	99	97
Enhanced My Skills percent strongly agree/agree	96	90
Improved My Attitude percent strong agree/agree	85	85
Recommend to a Friend percent very/somewhat likely	95	95
Graduation Requirement percent yes	92	89

There were two unexpected benefits of the redesign. It reduced problems with course policy interpretations, such as attendance, because there was one common and enforced policy clearly stated in the course syllabus that was provided to all students via the Blackboard site. The second unexpected benefit was that the redesign assured that students would never have a cancelled class due to instructor absence. Since all sections were covering the same material, no time was lost when an instructor was absent. His/her students would simply attend another

instructor's class offered at the same time.

### REDESIGN OF PSYC1000 —“INTRODUCTION TO PSYCHOLOGY”

“Introduction to Psychology” is required for all psychology majors, is a required cognate for many other majors, and is a popular course for satisfying social science requirements for foundation courses. The redesign for Fall 2006 and Spring 2007 has two master lectures per week (Monday and Wednesday) and breakout classes on Friday. A senior faculty member gives the lectures and supplemental instructors (a combination of graduate assistants and senior undergraduate students) conduct the twenty-five student breakout classes. One of the key elements of the course is a series of mastery quizzes on the material in the textbook. Each quiz is a randomly generated set of twenty multiple choice questions drawn from a large quiz pool of questions that was created by combining the textbook publisher's quiz pool with additional quiz pools from other psychology textbooks supplied by the publisher.

- Students take quizzes before the material is covered in class
- Schedule of quizzes is listed in Blackboard under course information
- Quizzes can be taken through Blackboard 24/7
- Students have approximately a week to do each set of quizzes
- Each set has ten quizzes—only the highest grade is kept
- Students must get at least an 80 or take all ten quizzes before stopping
- At end of semester, if students have taken all twelve sets, they can drop the two lowest quiz grades
- Average grade of quizzes = 20 percent of final grade

There are also ten tests given in the Friday breakout sessions on the material covered in the master classes and breakout session since the last text. The schedule for these tests is listed on Blackboard. The format varies—short essay, fill in blank, matching column, true/false, and multiple choice. If students take all ten tests, they can raise their lowest test score to a ten before averages are calculated. In addition, students must take a midterm exam, a final exam, and

participate in an experiment. Attendance was mandatory at all master classes and breakout sessions and perfect attendance earned a student five bonus points added to the final grade.

Student evaluations of the course were positive. The instructor's always high Student Opinion of Instruction Survey (SOIS) ratings were even higher. Students seemed to have adapted well to the course structure, an unusual one for ECU, and they indicated a desire for more breakout sessions. Some of their responses to the strengths of the course, particularly the breakout sessions and mastery quizzes, were as follows:

- “The strengths are that we take the quizzes and tests to keep us learning.”
- “The mastery quizzes, they make us read the textbook.”
- “Dr. Handron’s lectures are very interesting. They keep me awake and intrigued throughout the class.”
- “[My breakout instructor was] Well prepared, efficient, and organized when teaching materials and administering tests.”
- “I think my breakout instructor covered the material well and did a good job answering our questions.”

Pretests and posttests were conducted in all sections of PSYC1000. No instructors saw the test. It was administered during the first week of classes and at the final exam. The redesign section, Section 4, had the highest pretest score, the highest posttest score, and showed the greatest significant gain from pretest to posttest. See Table 2 for a comparison of pretest and posttest scores for selected sections.

Table 2. Pretest and Posttest Score Means and Standard Deviations by All Sections and the Top Four Scoring Sections on the Pretest

	Pretest Mean	Pretest Std Deviation	Posttest Mean	Posttest Std Deviation
All PSYC1000 Sections	43.25	9.35	50.87	11.79
Section 4 (redesign)	46.53	9.84	57.25	11.37
Section 3	45.97	7.86	46.08	13.17

Section 6	45.37	9.06	50.60	10.06
Section 13	44.82	9.90	53.54	10.87

When we examined SAT scores, the redesigned section had the lowest verbal scores. This made its accomplishments all the more rewarding. We were very concerned with reducing the D, F, W rate and the comparison of Section 4’s rate (15 percent) with all other PSYC1000 sections (40 percent) indicated that we were successful.

## LESSONS LEARNED

### *TECHNOLOGY ISSUES—LESSONS LEARNED*

The team learned some important hardware and software lessons. Finding technology-enhanced large classroom space has to be a top priority. On ECU’s campus, such rooms are rare. Queuing for such rooms begins early, and priorities need to be established for the use of the rooms. The breakout session instructors need laptops and projectors. ITCS Academic Computing secured most of this equipment for the redesign courses. There are some important training concerns with both hardware and software. The supplemental instructors had to be trained on the practical and pedagogical use of the equipment. Academic Computing and the instructor did the training. The instructor had to be trained on the use of the smart classroom and Blackboard. This training was done by a combination of Academic Computing and the college’s Instructional Technology Consultant.

The skill of the students to use the technology effectively differed slightly between the two courses. The use of hybrid delivery in HLTH1000 eliminated the need for large classrooms and made effective use of the exceptional expertise of the department’s faculty in online instruction. It was anticipated that freshman students might have trouble using Blackboard and that they might not enjoy a course that included both online and face-to-face instruction. This

concern has not been substantiated in the experience of the HLTH1000 redesign. We learned that today's students enjoy this type of course delivery and have the skills required and the interest in learning via online instruction. In PSYC1000, students experienced more of an adjustment period at the beginning of the course with the mastery quizzing. The ability of the instructor in the smart classroom, and the supplemental instructors with laptops and projectors, to demonstrate the process greatly helped to solve the problem. The team needs to be sensitive that it is possible to overwhelm students and instructors with new technology, particularly because many of the students are incoming freshmen with widely varying experience with computer technologies.

In the software area, we learned that simpler is better. When we began the psychology redesign, we (students, instructor, team) were dealing with two versions of Blackboard (version 5 was in use officially but version 6 was used by the publisher's web resource and was in pilot at ECU) as well as the publisher's textbook web site. Students had great difficulty understanding that for the redesigned psychology course they were in Blackboard 6, but for their other courses they were using Blackboard 5. Now that ECU has adopted Blackboard 6 and everything is in one version of Blackboard, they have a much easier time. As useful as Blackboard is for many functions, we have a problem with the mastery quizzes because Blackboard is not able to identify the highest quiz score in the set of ten quizzes per topic and place it in the grade book. This must be done by hand by the supplemental instructors.

The quiz pool for the mastery quizzes had to be enlarged. The publisher granted access to the test banks of other texts. Each question in the supplemental test banks had to be checked to make sure that its content was in the course text, and that terminology was used in the same way. This is a labor-intensive process, but a necessary one, to ensure a large question pool for each

chapter or module. Managing the grade book in Blackboard, for a class of 230 students is cumbersome because of the size necessary for fourteen sets of ten mastery quizzes. At times, both the instructor and the supplemental instructors have struggled with this. The final software lesson learned is the need to introduce students to Blackboard and the mastery quizzes in class. A clear explanation of both greatly reduces confusion and e-mails. It is class time well spent.

### *INSTRUCTIONAL ISSUES—LESSONS LEARNED*

The course redesign needs to begin with obtaining departmental support for the project and agreement on basic course topics. An expected side effect of the agreement on course content was greater consistency in the delivery of the course. Within the redesigned course itself, it is important to have consistency in the breakout sessions. The instructor has worked to assure this. The choice of instructor is of great importance. In both redesigns, the instructor's delivery of instruction is key to the course's success. Both redesigns used master instructors, faculty members recognized by their colleagues and students as excellent teachers. A matter that needs to be settled at the beginning is how to count the large enrollment course in the instructor's courseload for annual review. With these issues agreed upon in the beginning, the redesigned course will proceed more smoothly. An important lesson learned is the need to adjust the behavior of the instructor. Most instructors are accustomed to a fairly autonomous role but must function in the team environment of the redesigned course. It is also important for team members to be sensitive to the instructor's position as the faculty member of record. He/she is the faculty member who will be evaluated by the students, the department chair, and colleagues.

There were some lessons learned in the delivery of the course. It is important to teach to different learning styles by incorporating reading, auditory presentations, interactive visual activities, and discussion. Both redesigns have reduced lectures but cover the same material as in

the past. This means covering the content in dense, fast-paced, nonrepetitious introductory courses. Care needs to be taken that the material is accessible to the largely freshman and sophomore audience. It is important to engage students actively with the course material. This was done in PSYC1000 through the mastery quizzes and breakout discussions and in HLTH1000 by the quality of the video teaching moments. It is important to ensure adequate student/instructor contact and the creation of social presence for each student. These students are largely freshmen and sophomores and their other classes tend to have thirty to thirty-five students. They need to feel they are in a class, albeit a large class, with the instructor.

#### *INFRASTRUCTURE ISSUES—LESSONS LEARNED*

A top priority is scheduling. Access to large, technology-equipped classrooms remains problematic. The university is working on policies to address such scheduling, especially who will receive priority access. Scheduling sufficient rooms for breakout sessions is also difficult when space is limited.

While most of the redesign was done without the addition of new money, there are two areas where it was necessary to secure funds: money to pay the supplemental instructors in psychology and money to purchase needed hardware and software. Academic Affairs and ITCS provided assistance. In psychology, a pretest/posttest was implemented. This has been useful in assessing the effectiveness of the redesign. In psychology, the faculty progressed from having no common syllabus or textbook to a consensus on the topics to be covered in the course. In health education, they began with common course materials.

An important lesson learned was the need to be prepared to handle students' help requests. Discussion of today's technology-savvy students notwithstanding, many students were inexperienced with technology, especially with its academic uses. A key element for success in

terms of the hybrid delivery is to involve faculty who have significant experience with online instructional delivery. Their experience greatly minimizes the problems that students experience with the technology because they anticipate problems and build-in strategies to avoid common pitfalls that accompany online instruction. While the large enrollment classes offered an opportunity to field test technology and strategies, doing so can sometimes be a challenge.

#### MAJOR ACCOMPLISHMENTS OF REDESIGN PROJECTS FOR ECU

Experience with these two redesign projects has offered us an opportunity to share techniques that work well with the campus community. It has also been an opportunity for various parts of the campus to work together as a team for improved instruction with a course redesign goal. The redesigns have provided the university community with more efficient use of classroom space and with standardized course content. With the increased focus on retention, the improved learning of students in Psychology 1000 as measured by pretest/posttest and reduced D, F, W rates is meaningful. The redesigned courses have offered the departments coverage of important introductory courses by a minimal number of faculty members, thereby freeing faculty for other undergraduate and graduate programs.

The university has had several other units express interest in redesigning one or more of their courses, so, we anticipate doing additional large enrollment course redesigns in the future. Based on the team's experiences with these two redesigns, PSYC1000 and HLTH1000, we are looking forward to working with new redesigns of large enrollment courses.