CLEMSON UNIVERSITY's COLLABORATIVE LEARNING ENVIRONMENT

Carla Rathbone,
Patricia Connor-Greene
Nagraj Balakrishnan
Janis Miller
Michael Crino
Clemson University

ABSTRACT

This presentation will focus on the development and operating characteristics of the Collaborative Learning Environment (CLE), Clemson University's delivery system for all academic computing. The CLE promotes active, student-centered learning and collaboration. It is easy to use and universally accessible to more than 36,000 faculty, staff and students through a single userid and password. It provides a consistent suite of tools, services and class workspace for every course section taught. As a means of demonstrating the versatility of this environment we will also provide two classroom applications of this computing environment by professors in the management and psychology departments.

INTRODUCTION

What distinguishes the CLE as a superior learning environment are its unique features:

1) Universal accessibility through a single login (Clemson userid and password). Clemson's "virtual" computing environment allows students, by merely identifying themselves to the network, access to a personalized array of services no matter where they happen to be. The CLE can be accessed from both the network and the web allowing greater flexibility for asynchronous learning.

2) Automatic creation and administration of class workspace and tools each semester for every course section taught (approx. 3000 classes). The CLE is tightly integrated with our student database and course management system that processes information about class memberships and drop/adds for the automatic administration of every course.

3) Ability to group classes across the curriculum, for example a Spanish class and a Nursing class could share the same class workspace and resources, and create mixed-class teams for course projects.

4) Web tools that include web conferencing, web templates, an on-line syllabus builder, and web calendar.

5) Individual student folders for turning in date and time stamped homework assignments.

6) Library Reserves folder for on-line electronic copies of reserved reading materials for every class.

The support structure for the CLE includes comprehensive training programs and dedicated training and development labs for faculty and students, as well as on-line documentation, tutorials and help systems for users at remote sites. The Collaborative Learning Environment works in partnership with the Office of Teaching Effectiveness and Innovation to evaluate and assess the technological needs of faculty and students to enhance teaching and learning and to promote programs that integrate technology into the curriculum. A CLE Advisory Board of faculty representatives from every college, the Library, and the Office of

Off-campus, Distance and Continuing education guide the efforts to promote instructional technology that meets the needs of all students.

Benefits of the CLE

- Easy to use and class space automatically created and managed for every course section taught (approx. 3000 classes/semester)
- Easy to access from the web and network - available to all users not just a privileged few
- Provides a variety of ways for communication
- Automated class space frees up class time
- Consistent interface for all classes - common look and feel
- Nothing new - uses existing applications
- Single login for access to all resources - security built in
- 500 Meg. Disk space per class section
- Electronic library reserves
- Addresses large classes, encourages collaboration by faculty/student and student/student
- Supports teaching across the curriculum
- Students can share ideas, projects and learn to work as a team
- Teaches students valuable computer skills to compete in marketplace
- Supports delivery of distance education courses
- Support structure - training programs, labs, partnerships

Defined Services for Version 2:

1. Upload to web
2. On-line grading and testing
3. On-line survey/feedback form
4. On-line syllabus repository
5. Administrative applications (SIS,FAS) links
6. Discussion Board updates
7. Customization of user services
8. Web single sign-on
9. Automatic team creation option in administrator's interface
10. Student names instead of userids or in addition to userids on folders from web
11. File naming conventions not restricted to 8.3
12. Built in help system
13. Real time chat

Application 1:

The management department recently decided to move its computer-based simulation of the shoe industry to the CLE. This effort has been a real success for both students and faculty. Not only has the management department preserved all the benefits that made the previous mainframe version of the simulation an effective role-playing environment for introductory management classes, it has improved the simulation experience by providing a 24-hour on and off campus forum.

CLE Team Space

The instructional flexibility of the CLE Class Workspace ensures that time and place no longer restrict interactive student/student and student/instructor relationships in Clemson University courses. In the case of the simulation project, the potential to set up team network space in a matter of seconds has streamlined the simulation process. The team setup works perfectly for the virtual shoe store, allowing faculty and students to focus on the management side, not the computer administrative side.

How does it work?

Students share Excel spreadsheets in their CLE team folders, where they can work either synchronously or asynchronously on price, promotion, and production and inventory management figures. They can experiment with a range of decisions and market assumptions until they see resulting financials that they find acceptable. Once the student team members reach consensus, they enter the final data into a special form also located in their team folders. This form is designed to save the

team's decisions in the shared team space until the professor collects it (using an automated sweeping program), runs the simulation, and distributes the results to the students' team folders. Within minutes, students can access their results through the campus local area networking system (NAL) or through the CLE Web interface.

Not only does the CLE team space make it easier for faculty and students to communicate regarding simulated business decisions it enables a level of customization not easily accomplished in the previous simulation administration. Individual professors can now set the parameters for the types of information students will work with in a given semester. This ensures that the simulation experience is always challenging for students. And amazingly all these academic benefits actually require less time and effort on the part of both faculty and students in the management department.

The web interface has made it possible for students attending Clemson University study abroad programs in Europe and Asia to compete with student teams on campus. This semester has also seen business owners competing with student groups. The business owners use a web interface to enter their decisions and receive their results. This added dimension to the formerly student only competition has been met with considerable enthusiasm by our students.

Application 2:

The CLE class workspace resolved several difficulties in a problem-based service learning (PBSL) project used in Abnormal Psychology classes at Clemson University. The PBSL project was designed to enhance students' information-seeking and problem-solving skills regarding psychiatric diagnoses and treatments. This PBSL project has two goals: 1) to help students become educated consumers of psychological services through hands-on experience in locating and evaluating relevant information and treatment, and 2) to provide a service to the community through the creation of a resource guide to mental health services.

Project description:

Students work together in teams of 4-5 students. Each team randomly draws a card that specifies a situation (e.g., "your 20 year old sister was recently diagnosed with bipolar disorder"). Because the project is designed to simulate a real-life situation, assignments are random, and each team works on a different disorder. The PBSL project spans the entire semester. The five parts include: 1) an overview of the disorder, including common treatments and their risks/benefits, 2) an annotated bibliography of relevant journal articles, books, and internet sites that would be helpful in coping with this disorder, 3) an evaluation of community treatment resources, including hospitals, clinics, and self-help groups, 4) recommendations for additional resources needed (books, articles, community treatment facilities, and 5) a bound resource manual, consisting of parts 1-4, which can be used by those in the community who are seeking information concerning that specific psychiatric disorder and its treatment.

Project Difficulties

The primary project difficulties reported by students involved coordination of team effort (scheduling meetings), lack of individual accountability, and wasted paper. In the initial semester that we used this project, each of the five PBSL parts were completed as a team, which allowed the uneven distribution of effort among team members that often plagues group projects. In the second semester, each team member wrote an individual contribution to share with all team members; these were then edited by each team member and compiled into a group product. This approach was much more successful in fostering meaningful work by all group members and encouraging team members to work collaboratively. However, two major challenges remained: 1) an enormous amount of paper was required for each student to edit multi-

ple drafts of their teammates contributions (photocopy cost and paper waste), and 2) communication within the groups was difficult given students' busy schedules outside of class (meetings were difficult to arrange).

CLE Solutions: Team Space

The PBSL project is now in its sixth consecutive semester of use, and has been modified each semester to encourage both individual accountability and better team communication. The CLE enabled classes to be grouped into teams that can communicate via computer and edit text on line, which eliminates the problems of paper waste, printing cost, and scheduling out-of-class group meetings. All team members now post their work on a shared computer workspace. Furthermore, this past semester, a new component was added to the project. Each team now creates a web site, which allows for much wider distribution of their team's final product, providing greater benefit to the community.

Another Application: CLE Class Share Space

The CLE class share space provides an opportunity for students to do class presentations without using class time. In an honors seminar on the Social Construction of Madness, each student does a case analysis of a renowned creative individual with a psychological disorder. Students create a PowerPoint presentation to share their findings with the rest of the class. They save these presentations on the CLE class share space. The presentations are then assigned readings for several class sessions. Using the CLE share space in this way preserves class time to be used for in-depth discussion after the students have all reviewed the presentations.