The University of Central Florida (UCF) has been rapidly implementing strategies to develop and deliver on-line courses, programs and services during the last 18 months that have resulted in the emergence of a virtual campus. Transforming the campus culture toward asynchronous teaching, learning and business practices via distributed technologies require complimentary amounts of key ingredients that combined yield rapid, scaleable change. This paper describes the planning, models, processes and lessons learned in "Going Virtual" at UCF.

The figure below illustrates the rapid growth in the number of on-line courses and students enrolled during the last 18 months. These on-line courses vary in the extent of asynchronous activity. Emphasis was placed on delivering courses with minimal class meetings until fall of 1997, when asynchronous learning techniques were applied to on-campus courses to increase interactivity, improve retention and increase productivity. Data are now being collected on these experimental courses.

Figure 1. ALN-based course growth at the University of Central Florida from summer 1996 through fall 1997.

The Need for Asynchronous Learning at UCF
Central Florida is one of the fastest-growing regions in the nation. Orlando is a center for high technology and space-related industrial development in addition to being one of the world's most popular tourist destinations. The University is just over 30 years old and serves approximately 29,000 students. UCF is a metropolitan university as shown by its nontraditional demographics. The average student age is 26 and only 2,000 students live on campus.

UCF is aggressively developing distributed learning programs, particularly asynchronous learning networks (ALN), to meet the needs of its students. State projections show that UCF will nearly double in size within 20 years due to increased numbers of high school graduates and adult returning students and a workforce that requires lifelong learning. An alternative paradigm called distributed learning uses computers, networks and on-line information so powerful that a new pedagogical model is emerging to change the content and process of education (Dede, 1996). At UCF, this pedagogical model is driving the creation of our virtual campus.

The university has chosen to employ asynchronous learning networks (ALN) as a primary approach to address the challenges of a rapidly-growing, diverse student population, a shortage of classroom space, and the need to maintain quality-all within available resources. To use asynchronous learning for obtaining degree programs requires access to campus infrastructure and services and facilitated relationships through learning communities. Plugging in existing ALN models used elsewhere will require customization to meet individual campus needs. Identifying needs and evolving processes requires genuine experimentation. This willingness to change among universities is required (Katz, 1997). It was through experimentation at UCF that the term "distance learning" was soon replaced with "distributed learning." ALN creation at UCF using distributed technologies has made Simonson's prediction seem possible: that “distance” as a definition will become relatively unimportant (1995, p12).

**Key Ingredients for Going Virtual**

A Virtual Campus consists of many important elements that add up to the ability to teach and learn anytime, anyplace with institutional responsiveness. A responsive campus is made up of departments that are aware, alert and ready to serve students and faculty asynchronously. This type of responsiveness doesn't happen overnight. A change process must occur by designing and evolving the technical infrastructure, providing administrative support and leadership, providing systematic faculty development, and assessing performance for continuous improvement of course delivery and services. Achieving a multifaceted response to consumer demand for increased access, improved quality, and reduced cost of higher education is the concept of a virtual university (Twigg & Oblinger, 1996 p. 21).

Provision of key technical and training ingredients of a virtual campus is not enough to make a virtual campus develop. Expert facilitation must also take place through administrative leadership to catalyze positive change throughout the institution. A by-product of distributed learning using asynchronous techniques is learning communities. The factor enabling
mainstream faculty and students to succeed as on-line teachers and learners is collaborative learning using ALN techniques. In a successful virtual campus, learning communities develop not only among individual classes, but also among faculty developing courses across colleges and disciplines, developers across departments and researchers across technologies.

Critical mass in developing ALN is achieved when the right combinations of faculty enthusiasm, technological capabilities, administrative support and recognition of pedagogical opportunities exist. Ideas breed, energies are focused, risks are managed and lessons are learned through facilitated learning communities. Learning communities also support the rapid adoption of pedagogical models, evaluation of Web-based tools and the creation of solutions that lead to the dissemination of best practices that create critical mass leading to campus-wide cultural change. Using a combination of face-to-face and technology-mediated communication increases the formation of learning communities over using just face to face meetings or pure mediated systems (Etzioni and Etzioni, 1997).

**Going Virtual: TechRanger v. LoneRanger Approach**

The "LoneRanger" approach occurs in many institutions as faculty, student webmasters and a few isolated departments or colleges attempt to create on-line courses. Many can yield good results, but the institution's ability to scale efforts, maintain quality courses and programs, and provide benefits to many other units in the institution is impossible using this approach.

Over the past two years, UCF has made significant investments in key ingredients: technology infrastructure, faculty and student support services, and organizational development to support both regular campus instruction and the asynchronous learning initiative. The Division of Information Technologies and Resources was formed in early 1995, bringing together the Library, Computer Services (academic and administrative computing), Telecommunications, and Instructional Resources into a single administrative unit. The position of Vice Provost for Information Technologies and Resources was created to head this division, which reports to the Provost and Vice President for Academic Affairs.

During 1996 a new Distributed Learning Course Development unit was formed to create professional ALN courses and provide related faculty and Web research and development support. This new unit has acted as a process helper and catalyst for change to create communities of learners among students, faculty and Web developers at hosted events. The Course Development unit calls its virtual course development team members "TechRangers" representing institutional responsiveness and readiness to collaborate.

High quality course materials are created through a team that consists of subject matter experts (faculty), instructional designers, programmers, and graphic artists. Course development staff (TechRangers) work directly with faculty to provide a professional model for building course materials. With this approach, faculty members are not required to possess knowledge of HTML programming or multimedia production. Future plans include providing Web support to departments and students supporting virtual campus activities including Web site management. Technology-based formats such as ALN change the division of labor which are rapidly creating a new class of instructional personnel who
support faculty (Jones, 1996). Ten years from now it is predicted that course development
teams will be the typical approach to develop curricula and courses (Twigg & Oblinger

Reorganizing the Campus for Scale

In 1997, the Vice Provost for Academic Affairs reorganized his division to create the UCF
Center for Distributed Learning. Distributed Learning has full responsibility for planning
and administering the university’s interactive television and ALN programs. The Center will
serve as a clearinghouse for processes and resources in support of off-campus and distributed
learning credit programs, courses, and students, as well as marketing for both live and
distributed learning courses. It also is providing leadership and coordination for efforts to
achieve accreditation for distance learning programs throughout the university.

In addition, the Faculty Center for Teaching and Learning (FCTL) was created and a
Director appointed. The FCTL is undertaking campus-wide, faculty-led systemic initiatives
to improve the UCF teaching and learning environment. A working partnership between the
FCTL and Information Technologies has been formed to provide mutual assistance and
coordination of faculty development activities.

Planning, Models and Processes for Going Virtual

Just as the right combination of key ingredients must be present for critical mass to occur in
developing on-line courses and services, faculty input, administrative support, knowledge of
existing models and expert consultation must all come together to create a development plan.
Informal seminars on instructional uses of the web were held highlighting entrepreneurial
efforts by individual faculty who piloted web-based courses. These seminars attracted the
attention of administrators to faculty innovators. An advisory board made up of faculty also
met and the deans reviewed potential delivery modes and models with the expert facilitation
of Dr. Carol Twigg, EDUCOM Vice President.

The UCF model for ALN course and program development that arose from an initial pilot
course and through meetings with faculty and administrators can be summarized as follows:

Needs assessment: Determine the market or audience for courses or programs.

Delivery system selection: Based on the student and course/program characteristics, select
the appropriate delivery mode(s).

Planning: Once the market and delivery system have been determined, bring academic
leadership into a planning session, aided by consultants knowledgeable in the delivery media,
to agree upon an implementation plan and to make a commitment of resources to the project.

Instructional design: It is imperative that pedagogically sound instruction is designed for
the selected delivery system.
**Instructional support team:** Assemble an academic support team that includes faculty, technical experts, and support staff.

**Faculty development program:** The faculty who will develop the courses are provided one or more of the following: release time, multimedia computers, course templates and software, and/or assistance via workshops and one-on-one consultation on course development.

**Learner support system:** Systems are implemented on-line and by phone to provide students access to library materials, admissions, financial aid, registration, the bookstore, advisement, and other relevant support services.

**Pilot phase:** The courses that are designed in the course development project are given full support from the instructional support team, beginning with a course orientation and including summative and formative evaluation.

**Demonstration phase:** Once the courses are developed, departments begin development of full-scale program offerings. On a long-range basis, colleges assume responsibility for faculty and course support.

**Implementation:** The collegial processes for course and program approval and establishment of accreditation documentation end the planning and development stages. Marketing of the programs and courses to the intended audience(s) follows this stage.

**Evaluation:** Evaluation will assess the implications of ALN for teaching and learning at UCF by examining: (a) the impact of distributed learning on faculty instructional practices and preferences, (b) the impact of ALN on student learning processes, outcomes, and satisfaction, and (c) a cost comparison between traditional and ALN-based instruction.

**Walking the Talk: Learning to Teach On-line Asynchronously**

During the last 18 months, approximately 90 faculty have been involved with the ALN course development process at UCF. This process has evolved from synchronous workshops to model a 'classroom-assisted, Web course' approach. Faculty members participate in experiential learning to use tools and processes involved in teaching ALN courses through a combination of asynchronous activities and presentations by and discussions with faculty experienced in teaching ALN courses. The processes used in systematic course and faculty development have enabled the support of many faculty and courses while maintaining quality. Course developers act as change agents to facilitate model and process building across disciplines for faculty with varying levels of technological ability and experience.

Learning technological skills is only part of the change process faculty must embrace to be successful on-line professors. Faculty must find the balance of their role as facilitator and coach rather than pure subject matter expert and curriculum source. Students must engage in inquiry that goes beyond the walls of the classroom (McMahan and Dawes 1995). When the faculty become comfortable in their new role as ALN professors, the transition from
instructor-centered to student-centered pedagogy takes place (Collins & Berge, 1996). Noam (1995) states that true teaching and learning are about more than transmitting information. Education is based on mentoring, internalization, identification, role modeling, guidance, socialization, interaction and group activity. Odin (1997) also asserts the need for the balance of roles for faculty stating that instructors must retain their role of content expert and facilitate deeper learning by explaining, clarifying, directing and helping learners construct their own knowledge.

Making the Grade

During the pilot and demonstration phase, on-line course evaluation forms were used to make necessary course improvements. Faculty that had been through the course development process and were currently teaching an on-line course were also invited to lunches with developers and administrators. The faculty development model for learning to teach on-line evolved significantly from this process. Learner support materials were made such as handouts, registration procedures and homepages describing distributed learning offerings.

In July 1997, UCF hired a team of specialists to conduct a pilot study to examine teaching and learning in the ALN environment in an effort to determine the impact of on-line courses on both faculty and students. This pilot study is focusing on five areas of investigation:

- Demographics of students who enroll in ALN courses;
- Perceptions of students who have enrolled in ALN courses;
- Perceptions of faculty toward the experience of teaching in an ALN setting;
- Assessing student outcomes in ALN and traditional environments; and
- Identifying best practice ALN courses on the UCF campus.

Preliminary work on assessment will increase to a scale that will support the necessary analyses to achieve program success, and to provide valuable information for dissemination to a broader audience.

Future steps

UCF will continue to experiment building on-line courses and services to support students and faculty and measure the effectiveness of learning outcomes and faculty and student satisfaction. Heterick and Twigg (1997) assert that network-delivered, computer-mediated learning experiences will dominate the post-secondary learning in the decades ahead. UCF lessons learned in going virtual will help the institution use information technology wisely to create a campus and its community that are assessable anytime, anywhere.

For more information

UCF's virtual campus including distributed learning, course development, web research and development and asynchronous learning networks see: http://pegasus.cc.ucf.edu/~ucfdist

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