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Abstract

The Virtual Campus—where students, faculty and staff learn, instruct and administer in a virtual space rather than in brick and mortar buildings—requires support capabilities which, in most universities, existing administrative systems and organizations can not provide.

What systems and virtual organizations are required to admit, enroll, register and bill students when the classes are network-based with start and end dates determined by the student? What systems and organizations do we need to handle financial aid, grade reporting and counseling when the student may never set foot on campus? How do we build a sense of community in the virtual campus?

This presentation will look at how two universities have successfully developed administrative systems, procedures and organizations to support a virtual campus. The session will open with a short introductory presentation on the virtual campus and its special challenges and issues.
Introduction

Distance education is receiving increased attention at most colleges and universities. Many institutions have had distance education programs in place for years while others are moving rapidly to provide new distance education programs, services and products.

The virtual campus—where students, faculty and staff learn, instruct and administer in a virtual space rather than in brick and mortar buildings—requires administrative support capabilities traditional administrative systems and organizations were not designed to provide.

This paper looks at how two universities have successfully developed administrative systems, procedures and organizations to support a virtual campus. We will first explain our view of a virtual campus based upon on-line, asynchronous programs. We will then cover the challenges and issues faced in supporting students and faculty on this virtual campus and then move on to discussions of our specific implementations of a virtual campus.

On-line, Asynchronous Programs

Our focus is on administrative systems required to support on-line, asynchronous delivery of academic programs. On-line, which in our definition includes the web, allows students and faculty to connect to the ‘class’ from any location where a telephone or Internet connection is available. Asynchronous allows students and faculty to connect to the ‘class’ at any time. This results in a true virtual campus. On-line, asynchronous delivery supports the teaching/learning model of the University of Phoenix On-line and the CU Online at the University of Colorado.

There are other, equally valid, distance education teaching/learning models supported by appropriate delivery mechanisms; audio, video, satellite and other supporting technologies are successfully utilized in a variety of programs and universities. While these will not be discussed in this paper, we would like to emphasize that the teaching/learning model should drive technology selection, not the reverse. Technology will, however, enable new teaching/learning models and allow us to reach new students and to meet student needs not being met today.

Challenges and Issues: Student Support

Providing administrative student support services to distant students poses special challenges to institutions designed to serve the needs of a residential student population. Yet, distance learning programs cannot succeed unless significant efforts are made to provide comprehensive services to the distributed student population, in keeping with services provided to campus-based students. On a physical campus, functional departments are usually separated by the geography of facilities, with the library in one building, admissions and records in another and the bookstore in yet another. The distant
student however is disadvantaged by this separation. When they call or e-mail for services, it can be frustrating to have their call or message forwarded from one place to another. Connecting students to the university means that systems and services need to appear seamless. This might mean bringing all distance learning services under one department, creating new positions to link communication between services, or by connecting disparate services through available technology.

**Admissions.** Identifying the courses and/or programs to be offered via technology and establishing admissions policies and articulation is a critical step in the university’s move into distance learning. Deciding whether or not to offer complete degree programs without physical residency is an institutional decision, but this decision will have a large impact on academic advising. Which distance learning courses will transfer into which programs? How will they be transcripted? What is the virtual equivalent of “seat time” or attendance and which courses and programs are eligible for financial aid?

**Academic Advising.** Academic advisement need not be face-to-face, but verbal and written communication between students and counselors must take place early on to ensure that students are aware of their options and requirements, and so they can communicate their goals and expectations. Academic advisers may have to take on new roles and be prepared to discuss (or provide referrals) on any manner of concerns related to admissions, book ordering, registration, learning resources, and payment methods.

**Registration & Payment.** Traditional systems for registration and payment were generally established for a 16 week semester and the physical availability of the student. Since distance learning is inherently based upon meeting the scheduling challenges students face, universities may want to re-think traditional enrollment periods and investigate how their internal systems can support revolving enrollments and registrations via telephone, voice-mail, fax, and the Internet.

**Technical Support.** Having technical problems with hardware or software is the metaphorical equivalent of students arriving for class and finding the door to the classroom locked. Institutions contemplating virtual education need a plan for providing technical advisement and support for students at a distance. The amount of technical support will depend on the technology selected for delivery, but students need reassurance and early intervention to ensure that they can overcome any barriers the technology poses prior to entry and during continuous enrollment.

**The Bookstore.** The challenge of providing textbooks and materials to a distributed student population means that universities will have to be proactive in letting students know how far in advance materials must be ordered for class (for mail shipment) or how and where to retrieve materials online. Distant students also want the same things that campus students want such as T-shirts, university trinkets, software and supplies.

**Learning Resources.** Electronic library services are increasingly available today, but offering the full range of resources from hard copies of books to full text copies of articles is still a challenge. Distance learning students need to have communication access
to librarians fluent in electronic delivery, referrals to local resources, and the ability to search and retrieve from information databases independently.

**Financial Aid.** Depending on the program, financial aid entitlements and loans are available to distance learning students even if they are enrolled on non-traditional schedules. Universities need to be aware however, that they cannot limit financial aid options because they have positioned their distance learning programs into “extended learning” or “continuing education” departments. Many students will want to take courses from both traditional academic departments and continuing education departments and financial aid regulations require recognizing both options under most loan disbursements. These concerns should be researched in advance, to make sure that students are not caught in a financial bind.

**Challenges and Issues: Faculty Support**

Teaching students at a distance challenges faculty in many ways. Distance or distributed education requires a great deal of coordination and in many instances, a redefinition of the faculty role. It also requires both faculty and students to be able to effectively use technology to deliver and receive course content and to communicate with each other. Administrators responsible for distance education programs are well advised to anticipate faculty support needs and set up systems that allow faculty to concentrate on teaching and learning online. There are a number of issues that should be considered with regard to faculty support.

**Instructional Design.** Designing a course to be effectively delivered at a distance requires the use of an instructional designer or other professional who understands the medium of delivery as well as adult learning theory and learning styles. Distance delivered education does not provide the instructor with the immediate feedback that he/she has become accustomed to in the classroom. Therefore, some time should be spent reflecting on where most students need clarification of the material or need to have it explained in a different way. The distance delivered course should provide opportunities for students to interact with the instructor and with each other about the material presented. The instructional designer and the faculty member should work very closely in the development of the distance delivered course. However, as the subject matter expert, all final decisions about content and delivery should be the faculty member’s.

**Training.** It should be recognized that the faculty member is being asked to develop a course using a technology that he/she probably knows little about. Before the instructor can design an effective distance delivered course, he/she must be given the opportunity to experience the delivery medium and reflect on how it can best be used to deliver the content. This is best accomplished through training sessions that first show the instructor the delivery platform and then allow the instructor to use the platform to participate in a distance delivered course or interaction. All faculty who are delivering online courses should have this opportunity to get their ‘hands on’ the system before they begin the process of online course development.
Technical Support. Technical problems can present a major issue for faculty in two ways. The first is the technical problems that the faculty member may encounter. The second is that faculty often feel that they are responsible to students for helping them solve their technical problems. Our faculties are socialized to have ‘the answer’ to our students’ questions; and our students are socialized to look to the faculty for ‘the answer.’ This model does not work in distance education. The faculty needs technical experts who can help solve technology-related problems. They also need to be confident that when they suggest that students seek technical support, the students’ questions will be answered correctly and in a timely manner.

Changing Roles. Faculty who engage in the development and delivery of courses at a distance may find that the roles to which they have become accustomed in a traditional university environment have changed in the online environment. There may be an unbundling of the faculty roles and functions to better meet the needs of distance education students. The faculty need to be open to a more collaborative environment that uses instructional design professionals and technical support staff throughout the development and delivery of the course. The faculty member may or may not be part of a course development team. After the course is developed, other faculty members may be required teach the same online course.

Faculty may also find a fundamental change from a teacher-centered environment in the classroom to a more learner-centered environment online. Faculty are likely to find that they need to be more explicit about their expectations with online students. But at the same time, they’ll learn that the online learner is more self-directed and desires more interaction with the faculty member. Often, they bring more to the learning experience and they expect to know how they will use the course content and experience in their daily working lives.

Remuneration. Instructors in traditional institutions are often asked to participate in distance education programs in addition to their normal course loads. Many institutions are still trying to determine how to pay faculty for online course development and delivery. In many cases, faculty are paid for participating in the development of the course as ‘work for hire’. This means that the institution owns the coursework. As a result, other faculty may use the online course to teach additional sections of the course online. If the distance education course is in addition to regular workload, an honorarium or additional remuneration is customary. If the course is taught in load, no additional remuneration is forthcoming for teaching the course.

Course Approval Process. Distance education courses have historically had a reputation as not being quite the same (or as good) as face-to-face delivered courses. This is particularly true in traditional institutions of higher education where distance education programs were part of the Continuing Education program, rather than being aligned with the college offering the degree or certification.

In order for distance delivered courses to maintain a level of credibility within the institution and outside of it, it is important that the same faculty governance processes
that are used to approve the face-to-face courses be used to approve distance-delivered courses. For example, if the English department usually approves the syllabus for English Composition I, then the English department should review the distance-delivered version of the course and approve it as equivalent. In order to accomplish this, there must be an incentive for the departments to participate in the distance education program.

**Assessment of Learning Outcomes.** Faculty and students who are engaged in a distance learning activity must be certain that the learning outcomes are the same as those that would be expected on campus. In other words, faculty need to be assured that they are teaching the content effectively and that students are learning the material as well as they would in a face-to-face model. This requires us to provide opportunities for feedback about the delivery mechanisms in our distance education program. It also requires us to compare the learning outcomes of students at a distance and students on campus.

**Library Services.** Faculty teaching in distance learning programs will need to call upon library resources just as they do in their campus-based program. This means that our libraries need to make their collections available electronically to meet the needs of faculty just as we earlier described in this paper for students. A related issue is the use of the World Wide Web as a research tool. Since this is a relatively new resource for many faculty we need to help them learn how to harness the extensive resources of the Web for research purposes and also help them discriminate between the good and the bad sources that reside there.

**University of Phoenix Online**

The University of Phoenix is the largest private university in the nation with 58 campuses and learning centers spanning nine states and the Commonwealth of Puerto Rico. Total enrollment is approximately 42,000. The University’s Online program was developed in 1989 as an outgrowth of the University’s mission to provide opportunities and access to education for its working adult student population beyond its campus walls. We began the pilot program with a single course of 12 students back when modems were operating at 1200 baud speed and before the pervasive presence of the World Wide Web. Today the University of Phoenix Online campus serves over 3,500 adults enrolled in complete degree programs in areas of business, management, and technology.

From the beginning, the Online campus was a holistic effort, designed to offer students complete degree programs and complete student services, without the requirement for any physical presence on campus. The curriculum and instruction was designed to be integrated with the University’s campus-based programs, so students beginning a course or program on campus could transfer seamlessly to Online courses and back again. This element alone drove many of the early decisions made about the program, and represents strong value to our mobile student population who frequently find it difficult to merge their education with competing personal, professional and civic responsibilities.

As one of the earlier pioneers into the virtual education world, the University found it necessary to build a strong learning outcomes assessment component into its Online
programs, since very little research into the academic effectiveness of this delivery methodology was available at the time. Today, The American Productivity and Quality Center (APQC) has selected UOP as a “Best Practices” partner in the measurement of institutional performance outcomes. APQC was formed to help educational organizations transfer “best practice” processes through benchmarking best practices organizations from education, business, healthcare, and government. Benchmarking identifies the best practices organizations and the processes they use. It is a powerful tool for quality improvement. The University’s outcomes data is used for institutional improvement as well as providing individualized performance feedback to students.

**Students Served.** University of Phoenix Online students are working adults in their mid to late thirties. They average over 10 years of professional work experience and hail from every state in the U.S. Approximately 5% of the students live outside the U.S. Gender is split at 37% female and 63% male—compared with 5% female at the beginning.

**Key Success Factors.** The Key success factors in getting the UOP Online program from development to implementation include:

1. Establishing a separate campus entity with academic and operational goals and complete support systems to holistically manage the students and faculty.
2. Faculty governance processes are maintained to insure that the approval of online courses by the department is accomplished through the same processes as on campuses courses are approved.
3. Comprehensive faculty training is required in order to maintain a high quality of consistency in delivery.
4. There is consistency in curriculum design. While course content and instructional tools and techniques vary, each course is designed in a similar pattern so when students move from course to course in a degree program, the transitions are smooth.
5. Meaningful dialogue is an element of every course design. Courses are meant to be interactive and collaborative rather than didactic, which promotes a high level of student involvement in their learning and aids in retention.
6. Process and outcomes assessment is integrated as a quality control mechanism.
7. Student support is pro-active rather than reactive.

**Faculty Training.** All UOP faculty are contracted on a part-time basis with the exception of the full-time faculty who manage the department and oversee curriculum and instruction. Part-time faculty are required to have significant professional experience and advanced degrees in the subjects they teach. Approximately 60% of faculty who teach in our Online programs also teach in UOP’s 58 campuses and learning centers. The remaining 40% are contracted specifically for the Online campus. Having a large contingent of part-time faculty requires that extensive training be provided. The faculty training program is conducted using the same online distance learning technology selected for course delivery. The training has been formalized into a standard course conducted asynchronously over an 8 week period. It includes the following components:
1. **Technical training**—faculty are taken through a series of exercises designed to familiarize them with the delivery system. They practice sending and receiving messages and learn tips and techniques for efficiently using the online system as a teaching tool.

2. **Leaderless group exercise**—In small groups the faculty-trainees go through a leaderless group exercise which simulates the kind of interaction and facilitation which will take place in a class.

3. **Facilitation, communication, and syllabus preparation**—Several of the training workshops are devoted to the above subjects. An experienced faculty member guides faculty-trainees through the issues and expectations of course facilitation, tips for promoting effective and positive communication in an online environment, and course pacing as it pertains to their syllabus.

4. **Administrative requirements**—the final workshop deals with administrative requirements such as posting of “attendance” and grades, faculty responsibilities, etc.

5. **Observations & Mentorship**—Prior to teaching an online course for the first time, faculty will observe another instructor’s course in progress. The first time the faculty-trainee is scheduled to teach their own course, a mentor is assigned to offer assistance and feedback, and upon completion the mentor provides an evaluation.

**Student Services.** The University of Phoenix has established a separate campus solely devoted to the distance learning student. This “Online” campus is staffed with the support personnel required to service any and all student needs: Academic Counselors, Financial Advisors, Enrollment Counselors, Learning Resources and Technical Support staff, and others who process registration, attendance, grades, etc. The bookstore is out-sourced to a national book distributor, which specializes in book delivery to distance learning students. Books can be ordered via toll-free telephone number or from our Web site.

Since our campus relies heavily on telephone support of students, we have created an “Information Center” as opposed to a receptionist. Information Center staff are trained to not only route calls, but to also answer simple questions immediately (“What is the next class in my degree program?” “Was my grade posted?” “Who is my next instructor?”) The Information Center is a critical part of our Online campus since it enables students to reach a “live voice,” someone who can help them on the spot with many routine questions and requests.

**Student Advising.** Enrollment Advisors work with our Online students up front to help them understand admissions policies and get through their initial registration and technical orientation prior to the start of class. They will introduce the student to our Technical Support staff to make sure that students are able to log on to our server. Following admission into a degree program, the Academic Counselors take over. Academic Counselors will be the student’s primary contact for any (non-technical) questions and concerns thereafter. Enrollment Advisors, Technical Support Staff and Academic Counselors work hand-in-hand in a team, in order to ensure that our students are smoothly transitioned from initial enrollment to graduation. Communication is conducted via phone, fax, and computer and we attempt to be proactive to students’ needs by contacting them when there are enrollment, advising, financial or registration issues as
opposed to waiting for the student to call the campus in reactive mode. The technical support department has extended hours and is open 20 hours per day, 7 days per week.

**Student Information.** A comprehensive student tracking system is in place which contains complete data on our students so we can serve them quickly. When students call, their account can be accessed, notes made to the file, financial, technical or academic information reviewed, and therefore service can be provided in most cases on the spot without consulting a paper file.

**Foundation Technology.** UOP uses "client-server" technology to teach courses online. The server contains a variety of spaces where students can access information; register for class; pay for class; and request learning resources or technical support assistance. Our technology is also integrated with the Internet and UOP is increasingly using Internet/WWW resources to provide services to students and faculty alike.

**Online Community.** How do we build a sense of community online? UOP Online students develop a strong sense of community because of the collaborative learning model employed in the online class. In every class, students and faculty exchange "bios" which contain personal and professional information about themselves. Class groups are kept small (no larger than 13) and students are required as part of their grade to be active participants in course discussion. Course outcomes cannot be reached without significant collaboration between and among students. Small group activities are designed into every course and students must work together on these for a group grade. Faculty use open-ended discussion questions to stimulate relevant academic discourse and they guide and encourage students by their daily presence online. In addition, UOP has established a variety of student discussion spaces on our server for unstructured interaction - some of which is by topic and some of which is very general in nature.

**Virtual Library.** UOP’s learning Resource Center (LRC) is an electronic library that conducts bibliographic searches and document retrieval for University of Phoenix faculty, students, staff, and alumni. The LRC has electronic access to millions of journal citations in hundreds of online and CD-ROM databases. Two levels of service are provided: (1) Users can contact a librarian via toll-free number and receive assisted bibliographic searching services including document retrieval and referrals. (2) Users can conduct their own search on our Web site and retrieve full-text documents on their own. In addition, the LRC staff will provide resource referrals to local area libraries or clearinghouses, specific print reference books, and trade associations that may help students in finding needed materials.

**Summary.** Over 800 students have now graduated from UOP’s online degree programs. The cognitive and affective outcomes data we’ve gathered indicate that our Online students have performed as well (and in a few areas better) than their campus peers enrolled in the same programs. While clearly technologically delivered education is not for everyone, it is proving to be a worthy option for many.
CU Online: Implementing a Virtual Campus

CU Online is a virtual campus of the University of Colorado (CU). In 1996, CU President John Buechner made a commitment to create a Total Learning Environment for students—an environment where human and physical resources as well as technology are directed toward students and the learning experience. CU Online is an important component of the Total Learning Environment initiative.

CU Online was implemented in 1996/97 as a pilot project in the College of Liberal Arts and Sciences on the CU—Denver campus. The University of Colorado is a system of four campuses:

- CU—Boulder
- CU—Denver
- CU—Colorado Springs
- Health Sciences Center (located in Denver).

CU Online has experienced unprecedented success. We projected 200 enrollments in 10 courses in the pilot year; we experienced 950 enrollments in 53 undergraduate course sections offered in the 96/97 academic year. In addition, we had about 300 international students participate in a political science workshop that focused on the issues discussed during the Denver Summit of the Eight.

An online campus was conceived, designed and implemented to allow students not only to take courses completely online, but to register for classes, pay tuition, order books, seek academic advising, and search for resources—all using the World Wide Web. CU Online has received national recognition as the “Best Baccalaureate Educational Web Site” by the Northwest Center for Emerging Technologies which is funded by the National Science Foundation. In its inaugural year, CU Online has become recognized as one of the top virtual campuses in the world.

Courses Offered. CU Online offered one course as a beta class in Fall 96; 23 course sections were offered in Spring 97; 29 courses were offered in the Summer 97 term, and 53 course sections are being offered in Fall 97. All of these courses have been offered through the College of Liberal Arts and Sciences on the CU-Denver campus.

The Pilot Expands. By January 1998 all four campuses of the University of Colorado will have courses offered through CU Online. The department of Pharmacy will be offering all the course work for the non-traditional “Pharm. D” program online. The Graduate School of Business and the College of Engineering on the Denver campuses will be offering graduate courses online. The Boulder campus and the Colorado Springs campus will each being offering a course by January 1998.

Students Served. During the pilot year, the students served by CU Online were very similar to the general undergraduate population of the CU Denver campus, which is an urban, non-residential campus. CU Online students are typically in their mid-twenties to mid-thirties and employed full time while working to complete their bachelor’s degree.
Approximately 90% of CU Online students live in Colorado. Non-resident students are studying from as far away as Russia, China and Iceland.

We anticipate that the demographics of CU Online students will change when course offerings from other colleges are available online as the pilot expands in the 1997/98 academic year.

**Key Success Factors.** A number of elements of the implementation of CU Online contributed to the success of the pilot program in the College of Liberal Arts and Sciences on the Denver campus. These key success factors include:

1. The implementation of CU Online through the Office of Extended Studies as a cash-funded entity allowed CU Online management the flexibility to develop policies, procedures and incentive programs independent of the state-funded program.
2. Incentive programs were offered to individual faculty for the development of courses, as well as to departments within the college for their support of course development in their content area.
3. Faculty governance processes were maintained to insure that the approval of online courses by the department was accomplished through the same processes as on campus courses are approved.
4. Grant support provided funds to purchase Pentium™ computers and Internet service provider accounts for faculty who develop and teach online courses.
5. Strong support programs including faculty technical support, instructional design support, administrative support and student technical support were instituted through CU Online.
6. An outsource vendor was contracted with to provide technical and instructional design support which facilitated the progress of the development of the online campus. Faculty have complete control over the content of the course, but they do not have to build the courses in HTML.

**Faculty/Staff Training.** In order to develop and deliver high quality courses using the technology of the Internet, we had to provide significant training to CU faculty and staff. CU faculty who are considering teaching online, are invited to participate in a series of three training sessions:

1. **Demonstration of CU Online**—The CU Online system is demonstrated to faculty and staff. They become familiar with the features and functions of the system. In addition, questions about remuneration for course development, copyright issues, etc. are discussed by CU Online representatives.
2. **Faculty Round Table Discussion**—Instructional strategies used to teach online are discussed in detail during this session. Faculty members have an opportunity to ask detailed questions about the process used to convert their on-campus classes to online.
3. **Hands-on Computer Training**—Faculty members are given an opportunity to practice using the tools available on the Internet to teach online. They also get hands-on experience using the CU Online system.

The goal of these training sessions is to prepare faculty to develop high quality courses for delivery over the Internet.

**Instructional Design for Course Development.** Upon completion of the faculty training sessions provided by CU Online on campus, faculty are invited to meet individually with an experienced instructional designer to discuss the specific objectives and design elements of their course. Instructional design support is available to faculty at all steps of the course development and teaching process.

**Systems and Procedures.** CU Online is a complete virtual campus. This means that significant efforts were made to develop systems for registration online, payment online, advising online, and the provision of other services that students expect from a campus using the World Wide Web for delivery. CU Online is recognized for these efforts to provide a complete online experience for our students. Significantly more work will need to be done to automate these systems and make them work more seamlessly with the existing Student Information System (SIS) and Bursar Systems on all four campuses.

**Summary.** CU Online has experienced great success in its inaugural year. During the 97/98 academic year, we will expand the program to the other campuses of the University of Colorado. CU Online is currently positioned to be a leader in online education.