

**DISTANCE LEARNING ON THE INTERNET:  
A SITUATIONAL ANALYSIS**

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**ABSTRACT**

Embry-Riddle Aeronautical University (ERAU) recently began using WebCT as an interface tool to link the university's graduate aviation courses to its worldwide distance education student body. This report provides a qualitative SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) of the pilot-study course used by the university to determine the effectiveness of the new interface. The purpose of this situational analysis, written by the instructor of the pilot-study course, is to provide feedback to educators and administrators interested in learning more about distance learning using the Internet as the link between an educational institution and its students. Distance learning has emerged as the brightest star on the horizon of higher education innovation over the last decade and using the Internet to deliver materials to the learners is a trend that is not likely to go away. The author concludes that distance learning on the Internet has many advantages over face-to-face education but that there are a number of threats that must be addressed to protect the integrity of the institution implementing this type of degree program.

### INTRODUCTION

Colleges and universities around the world, including Embry-Riddle Aeronautical University, are facing growing demands for education that is at the same time more effective and less costly. As a result of these pressures, Distance Learning has emerged as the brightest star in the horizon of higher education innovation over the last decade. Distance Learning, delivered electronically to students in their own domain, is a strategy for adapting to a changing external environment that is now embraced by schools everywhere. . . As traditional place-based, face-to-face educational providers find themselves struggling to sustain quality educational programs because of shrinking budgets and enrollments, those institutions that are providing relevant distance learning programs are enjoying significant growth and increases in enrollment.

As with any academic innovation that challenges traditions that date back to Plato's time, this alternative to a "face-to-face" learning environment is, unfortunately, either contentious or confusing to

many within the academic community. Although resistance to change is common throughout society, educators sometimes demonstrate remarkable tenacity in defending status quo. Although challenging, the task of obtaining faculty buy-in on this new approach to educational delivery will be promoted by expanding awareness of the benefits of Distance Learning. Equally important, it will benefit both the providers and the users of this exciting new delivery system if some of the glaring weaknesses can be corrected through the communication of their inherent threats to an audience that needs to know. The trend toward the proliferation of Distance Learning is not likely to weaken. However, the weak programs **are** likely to fail and that should be a concern to everyone with an eye on the horizon.

### BACKGROUND

Embry-Riddle Aeronautical University (ERAU) has been a leader in the planning, design, development, implementation, and evaluation of Distance Learning (DL) courses in aviation-related education for over a decade. In

1993, the university began providing asynchronous graduate courses using the computer-mediated distance learning software and technologies available at that time. Recently, higher education's efforts to provide DL programs have been given a favorable tail wind by the emergence of an array of powerful new software tools that provide schools with the ability to interface their education offerings with the World Wide Web (WWW) or Internet. After reviewing a number of these new interface tools, the University's Instructional Technology (IT) Department selected WebCT as the best choice for the institution's situation. WebCT is described as an interface tool that facilitates the creation of World Wide Web-based educational presentations that can be accessed by anyone having an Internet connection.

After selecting the WebCT software, the next step was to pilot test the interface with one of the University's existing master's level courses. The pilot study was to determine the feasibility of switching all DL courses to the new interface and dropping the CompuServe interface that was being used to connect students worldwide. The pilot test involved the delivery of

MAS 606, Aviation/Aerospace Communications and Control Systems, using WebCT as the interface with students. The purpose of the pilot test, which the writer teaches, was to evaluate the "fit" between a university course, the new WebCT interface, the World Wide Web, and the university's unique student population.

The purpose of this paper is to provide a qualitative evaluation of the results of that pilot study. To evaluate how well a system is performing, one of the tools frequently used is a SWOT analysis. The acronym SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. SWOT analysis is grounded in the basic principle that an organization's strategy must aim at producing a good fit between the institution's resources and its external situation (Thompson & Strickland, 1998). In addition to the identification of relevant (a) strengths, (b) weaknesses, (c) opportunities, and (d) threats, the author offers some conclusions based on the experience gained in this study.

#### **STRENGTHS**

If we define a *strength* as something that

we are good at or a characteristic that makes us more competitive, then we should also have something to benchmark a strength against. In the current study, we will use conventional, face-to-face (FTF) instructional delivery systems as the basis for comparison as we discuss Distance Learning (DL) on the Internet.

Access. One of the obvious benefits of DL via the Internet is rapid access. DL courses can be delivered to students living anywhere in the world as long as they have access to the Internet. The asynchronous mode in which ERAU CDL courses are provided is ideal for allowing our students the freedom to work on course work when it is convenient for them. In face-to-face (FTF) classes, the material is normally presented during the day at a time convenient to the instructor and the institution. When students are free from the constraints of learning place and time, they can better manage their career and family responsibilities in a way that best suits them. For busy aviation professionals, this is truly a characteristic that gives DL an advantage over FTF environments. If student-centered learning is "better," then DL on the

Internet wins because it is obviously more "user-friendly" than FTF.

Power. Effective learning environments should involve frequent and personalized interactions among the learners and the instructor. In the pilot MAS 606 class, there were over 1200 "hits" recorded on the WebCT counter. This level of interaction far surpassed any face-to-face class I have ever taught in over 20 years of teaching. In addition to the sheer number of hits during the semester, the quality of the interaction and the depth of the exchanges between students was a defining experience for me and, apparently, from their end of course comments, to the students as well. The value of this interaction is vested in the *sharing* of knowledge and opinions between classmates. Instead of one "more-knowing" instructor and a group of "lesser-knowing" students, the interaction was based more on individuals with expertise in a given area sharing their knowledge with the rest of the class. Keep in mind that many of our students are experts in their own right and this delivery system allows them to "step up to the plate" when the questions involved an issue in their professional domain. The

members in this pilot-study class represented a diverse cross section of the aviation industry. There were many pilots (air carrier, military, corporate, and general aviation), and representatives of government, industry, and business in the class.

Other DL writers have addressed the benefits of "empowerment" inherent in an Internet-based delivery mode. In this pilot study, the writer observed the impact of this "empowerment" phenomena and it was a convincing, reinforcer of the intrinsic value this mode of instruction.

Cost-effectiveness. The economic benefits of DL are the primary driving forces in the rapid expansion of this form of educational delivery system. Distance learning is increasingly seen as a means to boost educational productivity and improve cost control. Institutions everywhere have recognized the financial advantages to be gained through videotaping a course one time and then using the same course every semester for several years without having the usual faculty salaries or additional production expenses. Depending on the number of enrollments, this can become a "cash cow" that

pays a lot of the institution's other expenses.

Automation. Using WebCT for DL creates a far more efficient way to exchange information and messages, retrieve and store data, log assignments, and analyze student performance (grade papers using computer applications, record number of forum hits, etc.) than would be possible in a FTF environment. Students in the DL classes are actively composing responses to questions and interacting with others electronically in a manner not unlike the chat groups people engage in for fun. In the MAS 606 class, students were required to research and upload 10 abstracts as a course requirement. With 19 students, this resulted in nearly 200 topic-specific articles that were shared and commented on by other members of the class. This level of collaboration, involvement, and sharing of information would be impossible in a FTF class.

#### **WEAKNESSES**

The learning curve. WebCT is a very powerful interface tool with an extensive array of features and constructs that can increase the sophistication of the learning experience.

It is not especially easy to learn, however, and a novice will quickly find that it is NOT a point-and-click kind of software. For this reason, institutions planning on converting to WebCT should also plan on providing training to its faculty before the semester actually begins. Adequate technical support should also be provided to answer questions from both faculty and students during both day and at night. Distance learners can quickly begin to feel isolated when they cannot access a course they have enrolled in and there should be someone available to help them solve the insidious software problems that always come up with new software.

The FUD factor. Fear, uncertainty, and doubt (FUD) is a condition that dissuades many faculty and students alike from joining the ranks of those who are working with technology and the World Wide Web environment. Other researchers have come to the same conclusion:

Unfamiliarity with and fear of distance education technologies represents the single biggest problem in distance learning today. Teachers need to become comfortable with the hardware, to understand how the

signal flows through it, to become familiar with media production, and to have guided, hands-on practice designing and delivering courseware in a non-threatening environment. Then, they will be able to focus on the learners rather than on the technology itself." (Sherry & Morse, 1995, p. 5).

As the trend toward increasing the university's commitment to DL delivery continues, it will be necessary to recruit and train additional faculty to avoid the frustrations that can occur when neither the faculty or the students know how to solve the software problems that inevitably come up.

Instructor time. It takes much longer to design, develop, and deliver a course in the DL mode. In FTF education, a professor walks into a classroom, gives his/her spiel and walks out. In a day or two, s/he reenters the room, gives his/her spiel and walks out. Student assistants help out with the grading of tests and other administrative activities. In the DL on the Internet mode, classroom activities take place on an around the clock basis. Students are uploading work from

wherever there are at whatever time they feel like working. Furthermore, they want feedback from the instructor so as to stay in a comfort zone. The instructor, therefore, is responding, or should be, to every student in the class. This need to respond to students on a regular basis easily consumes several hours a day every day of the week. Downloading files, grading papers and tests, reading the online communications, answering student's e-mail, posting grades, and maintaining the forum are all very time consuming activities. Compared to FTF faculty work, DL is much more work at much less pay, a condition that will not serve to attract full-time professors to the ranks of the university's DL program.

### **OPPORTUNITIES**

WebCT courses on the Internet can be offered to students worldwide. This opens up an enormous student market to the university. The compelling advantages to students include the freedom from location and time constraints, the potential cost savings, the ability to stay active in one's career (and be on the payroll) and still obtain an education. Another

bonus comes from having the opportunity to "work" industry problems within the context of the course requirements. The University, in turn, has the opportunity to target large student populations and offer educational opportunities to those working adults to whom there are no practical alternatives.

The DL courses ERAU offers are especially attractive to those busy aviation professionals who travel a lot and are away from home a great deal. Students can work from home, their office, an airplane, a hotel room, and at any time of the day or night.

Internet-based delivery also allows the institution to integrate new learning paradigms in which teachers, technology, and students are linked in exciting new environments that offer significant increases in speed and accessibility as well as greatly expanding the sources of relevant information. Because aviation is a dynamic, rapidly changing industry, aviation education should also be dynamic and be rapidly responsive to its students. Internet-based courses, such as MAS 606, provide a seamless interface with a wealth of current aviation events



that would not be available in a ground-based school setting. Contrary to popular opinion, many on-campus students do not have a computer and/or access to the Internet. By contrast, all CDL students have the required equipment and most are very proficient in using them.

### **THREATS**

Until recently, the University managed its distance learning courses in a manner that recognized the limited "shelf-life" of courses relating to the aviation industry. Courses were revised every two years and updated to insure the material was relevant. This policy has changed, unfortunately, and an administrative decision has been made to discontinue the two-year limit on course run. Contracts have been changed to delete the two-year time limit and consideration is being given to finding ways to reduce the faculty role in the development and presentation of these courses. These are apparently cost cutting measures that are meant to increase the profits generated by distance education courses. While saving money is always important, those that save it at the expense of quality should be reminded

that Embry-Riddle became the world's preeminent aviation university because of its world class excellence, not because of its thrift.

Most of our students are employed within the aviation industry and are aware of the changes taking place within that environment. Out of date course materials stand out like a beacon to this crowd. These students are also our best source of advertising for our graduate programs. Our reputation as the school with the best graduate program for aviation professionals could quickly change to that of being a "diploma mill" if our students perceive we have failed to provide them with the current and relevant education they expect for their tuition dollars.

### **CONCLUSIONS**

On the basis of the experiences obtained in this pilot-study, WebCT, with the new Internet connection, is significantly better than the traditional FTF classroom environment in meeting the current and future educational needs of a majority of the aviation education student population. Judging from the end-of-course comments submitted by the 19

students who completed the pilot study, DL on the Internet is a "home run" and a welcome improvement over previous classes most had taken.

From the faculty perspective, there was significant improvement in all areas of student performance, e.g., class participation, course completions, grades, participation, student interaction, etc. This course was definitely a more exciting and better learning experience than the typical FTF class. While one class does not provide sufficient evidence to support sweeping generalizations to all DL classes, it did provide the positive results needed to justify the green light for putting other ERAU DL courses on the Internet.

#### **RECOMMENDATIONS**

Offering DL courses on the Internet is a high-

potential, high-risk educational innovation that has the power to leverage an institution's future dramatically. The schools that prudently manage their involvement in Internet-based education to ensure that only relevant, high-quality materials are offered will find themselves with a growing student market that is almost limitless. For this reason, schools should carefully monitor the distance education programs to insure the standards of quality are not lost in the ever-present need to stay ahead of increasing costs. Administrators may be attracted to Internet-based education because of the economies of scale that it offers and become overly focused on the profit potential to the point that there is a risk to the program's quality. Schools should either excel in Distance Learning or get out of it.

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