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Classroom success using online distance education : methods for maximizing the effectiveness of online distance education

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Classroom success using online distance education : methods for maximizing the effectiveness of online distance education

Abstract

This review of literature was conducted to explore classroom success using online distance education and proven methods of maximizing the effectiveness of online distance education.

The components of successful online distance education programs are reviewed and brought together in a paper that suggests that online education developed with careful planning will continue to grow and become a standard component of many programs. The challenges that online instruction faces as it continues to develop are also included.

The future of online education is dependent on the quality that is built into courses. Technologies continue to evolve and present opportunities and challenges for administrators, instructors, and students involved in online distance education.

**CLASSROOM SUCCESS USING ONLINE DISTANCE EDUCATION:
METHODS FOR MAXIMIZING THE EFFECTIVENESS OF
ONLINE DISTANCE EDUCATION**

**A Graduate Research Paper
Submitted to the
Division of Educational Technology
Department of Curriculum and Instruction
In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts
UNIVERSITY OF NORTHERN IOWA**

**by
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Maximizing the Effectiveness of Online Distance Education

has been approved as meeting the research requirement for the
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Introduction

Definition and history of distance education

Distance education is an evolving concept. “A simple definition of distance education is any instructional activity in which the instructor and the learner are separated by space or time” (Ludlow & Duff, 1998, p.7). This definition does not include the term technology, but that keeps the definition open as distance education technologies develop. The technological tools that are used in distance education are a major contributor to the evolution of distance education.

The first type of distance education was in the form of correspondence courses. “In 1840, Sir Isaac Pitman, the English inventor of shorthand, came up with an ingenious idea for delivering instruction to a potentially limitless audience: correspondence courses by mail” (Phillips, 1998, p.41). Heerema and Rogers (2001), suggested that correspondence courses were planned with quantity and quality as the objectives. Universities were using lecture-based classes that would accommodate large numbers of students and correspondence courses followed that model.

Distance education evolved from correspondence courses in 1840, to courses that included mixed-media in 1969 (Curran, 1997). New

technologies continue to change the possibilities for delivering education at a distance.

Computers and the development of the Internet have had a big impact on distance education. "In the 1990's, digital technology via the Internet and other computer networks was seen as the major new development for distance learning programs" (Picciano, 2001, p.10). Many universities are now offering distance education courses for their students. "It is estimated that in the 1998-1999 academic year, 58% of higher education institutions in the United States offered distance learning courses. According to a study done by the U.S. Department of Education" (Lewis, 1997, as cited in Matthews, 1999, para.40).

The Internet has opened up a delivery system for distance education that facilitates learning in an interactive manner. Online distance education can be designed from a constructivist approach. "Cyberlearning is said to promote a "constructivist theory" of learning in which students actively construct an internal representation of knowledge by interacting with the learning materials" (Moore and Cozine, 2000, p.2). Online distance education may also be called online learning, which puts the focus on the learner. In a well-planned online course the student takes on much of the responsibility for constructing his knowledge.

Distance education needs to be well thought out and the courses should be designed with particular attention paid to the learner. Jegede believes that as technology is applied to distance learning it must be done with a focus on the learner (Jegede, n.d., as cited in Evans & Nation, 2000). Those responsible for delivering distance education, such as administrators and instructors will need to prepare by familiarizing themselves with the different types of technologies that are available for use in distance education courses and then selecting the most appropriate technologies for the course, while at the same time considering the learner. The contributions of different types of technology lend themselves more to the delivery of distance education, rather than the content. The choice of technology is an important step in the design of the course and needs to be addressed when designing distance education courses, as not all types of technology fit all courses and students. "Careful selection of available technologies and an appropriate match between media and goals can make distance education the most effective and efficient delivery system for many education programs" (Ludlow & Duff, 1998, p.9). An instructor needs to choose the technologies they will incorporate into their course carefully and with consideration of the learners and their learning styles.

The selection of the technologies to be used in distance education courses presents a challenge for the instructor because old technologies change and new technologies are created. Older technologies can contribute to a distance learning experience in a positive way and combine with the new to create the best possible experience for the distance learner. "All of the various technologies present opportunities and constraints that educators must understand. At issue is not which technology is better but how each technology is best used for specific goals" (Ludlow & Duff, 1998, p.11). It is important to understand the technologies that are available and then make informed decisions as to which to use when developing a course. Also involved in the choice of technologies would be whether they are high tech or low tech and selection should be dependent on what is more appropriate for the course than which is the hottest trend.

A driving force behind the choice of technologies would also be whether or not the course is to be synchronous or asynchronous. A synchronous course lends itself to a wider variety of technologies, while an asynchronous course has to have technology that stands alone in time and space and does not require or need immediate feedback among learners and instructor. An online course may be synchronous, asynchronous, or a combination of both.

The technologies used in distance education provide a method to communicate between and among students, educators, and specialists. Garrison argues for the focus of that communication to continue to be on quality:

He argued for the appropriate, conservative use of interactive communication technologies. The core of Garrison's argument was that: education, whether it be at a distance or not is dependent upon two-way communication. There is an increasing realization in the educational community that simply accessing information is not sufficient. In an educational experience information must be shared, critically analyzed, and applied in order to become knowledge. Garrison argued that the quality and integrity of the education process is dependent upon sustained, two-way communication. (Garrison, 1990, as cited in Hanson, Maushak, Schlosser, Anderson, Sorensen, Simonson, 1996, p.30)

The current technologies that are evolving, such as two-way audio/video, lend themselves to the two-way communication Garrison argues for.

Methodology

The information obtained for this review has been compiled to bring together some of the successful methods that contribute to the success of online distance education and indicators for achieving success with online

courses. The sources of information have been located through a search of the Grant Wood Area Education Agency Professional Library, which includes a large number of current books related to distance education and technology; Rod Library which has a large number of books on distance education; ProQuest, which is an online database of periodicals, that provides current information and includes educational journals; and the World Wide Web, which includes current information from a large number of educational sources.

The criteria used for searching for information included looking for current copyrights or dates on articles and searching under the topics of distance education, technology and education, and online education. The sources selected include a cross section of current information on distance education and information related to the history of distance education.

One procedure used for analyzing the sources included searching for articles on distance education related specifically to online instruction. The criteria used for evaluating the information found were the relevancy to the topics being addressed, articles that were more than a few pages in length, articles that included between ten and fifteen references, and the credibility of the author related to the topic. Some articles were included that were written by one or two individuals, with few references and

consisted of only a few pages, if the articles presented relevant information to the topic. One of the purposes of this research is to show successful strategies that can be used to implement online instruction as well as indicators of success. The articles written by instructors that have developed online courses are relevant to this purpose and may be brief in content, but contained teaching strategies that had been successful.

Analysis and Discussion

What are some of the key areas that need to be examined to maximize the effectiveness of online distance education? The areas that need to be examined to answer this question are: administrative planning and support; staff development and support; learner's needs and learning styles; and resources and technologies.

Administrative planning and support

Planning for distance education is one of the challenges facing educators and administrators. A commitment must be made to fund and support distance education so that quality education is provided. "Important decisions will have to be made regarding the goals and objectives of academic programs, equipment, software facilities, staff development, and finances" (Picciano, 2001, p.15). It is important that administration be aware of the decisions that need to be made and provide support for the decisions that are made.

Budgetary planning is necessary to ensure the success of online courses. "University administrators must also make a fundamental change in thinking. Will they be able to transcend their immediate budget pressures to pursue an investment of resources up front?" (Heerema & Rogers, 2001, para.23). The start-up costs are varied and expensive for distance education courses. "Investments in computers, virtual libraries, central servers and data networks, ongoing technical support, program development costs, and marketing can discourage institutions from pursuing distance education" (Matthews, 1999, para. 25). Once the start-up costs are covered, there will continue to be the cost of keeping up with the latest technologies.

The administration that is considering the budget and the costs of distance education must also look ahead at the benefits of distance education. Matthews (1999) states that:

The institution also reaps benefits from offering distance education. It increases enrollment, attracts new teaching staff (those interested in distance education), reduces the need to build and maintain university campuses and buildings, offers a new level of communication with students, requiring the university to keep abreast of new technology, and signals the public that the institution is forward thinking and technologically advanced. (para. 24)

Technology and budget considerations often have to be considered together. Technology costs are often a concern when looking at the budget. Technology costs include hardware and software as well as support for both. "Online courses require an accessible but fairly sophisticated computer infrastructure (unlike traditional distance education in the text-based mode) to ensure that all communications occur without mishap. For instance, servers that can offer streaming for audio and video resources may be beneficial in many circumstances" (Carr-Chellman & Duchastel, 2001, p.146). It is important to consider the technology support that will be needed when providing online courses.

Planning is necessary for future programs as well as current programs. Future programs will be built on current technologies. Schools must prepare by becoming familiar with the different types of technologies that are available and choose the best delivery method available not the most economical. It is important to plan for change and make accommodations for moving forward with evolving technologies. Current programs should be reviewed on a regular basis, and decisions on implementing new technologies must be made.

There is also a need to consider more than the technology involved, when designing an online course. Administrators must be aware that an instructor cannot simply deliver the traditional course online. A

great deal of planning and design must go into the course to make it successful. "Such transposition from one medium to another may have some value in reaching certain outreach goals, but it also runs serious risks of diluting the original instruction and possibly rendering it ineffective" (Carr-Chellman & Duchastel, 2001, p.146). It is important to provide staff with staff development and the support they need to be successful in delivering online courses.

Staff development and support

Staff development and support are important considerations when planning online courses. "At the present time, faculty are educated to be subject-matter experts" (Heerema & Rogers, 2001, para. 20). Instructors need training in order to be able to use technology effectively in teaching distance education classes (Matthews, 1999). It is important to make sure that the instructors have appropriate training before they are expected to teach an online course.

Support for staff development, training and implementation of an online course is important as illustrated by a group of instructors who began working on an online program. Moore, Lockee, & Burton (2002) found that a team approach allowed them an opportunity to learn from each other and support each other (p. 32). Working in groups may not

always be possible, but instructors need support. Moore, Lockee & Burton (2002) went on to conclude:

Basic technological change mandates the need for ongoing revision. Server updates and transitions, as well as Web course development software were factors that had major impacts on our implementation and support strategies. Whoever said, “the only thing constant is change” could easily have been referring to distance-delivered instruction. (p. 31)

Not all instructors will have a large group of co-workers for support and if they are just beginning to teach an online course, they may want to consider moving into the process gradually.

Many instructors will learn to use a Web course management system by adding an online component to a traditional class and after several semesters decide to expand to a completely online class. We highly recommend this approach, as it tends to reduce many of the frustrations you might encounter if you begin by jumping in the deep end. (Clark, Fredrickson & Hoehner, 2002, p.7)

Instructors may find a challenge in trying to decide whether to use a behaviorist or constructivist method of instruction. “Because this debate is currently based on epistemological beliefs, it is our feeling that designers and instructors need to choose for themselves the best mixture of

behaviorist and constructivist learning experiences for their online courses” (Carr-Chellman & Duchastel, 2001, p.149). Instructors that teach in a traditional classroom or online must use the instructional approach that they and the students are the most comfortable with.

“Project-based activities can give students the freedom to apply learning in practical contexts that are personal and relevant to them” (Howell, 2001, p.87). As instructors begin to teach online they may find project-based activities, which are constructivist in nature, to be beneficial to incorporate into their instruction. Projects give students an opportunity to work together, which may be important for online learners to feel connected (Howell, 2001, p.87).

One of the most important tools that online instructors can provide their students is the online study guide. The study guide organizes the content and activities of the course. It gives the student the outline for the course. Carr-Chellman & Duchastel (2001) point out:

Online study guides must provide a level of detail that is sufficient to enable the learner to proceed without substantial further personal interaction or clarification from the instructor. Naturally, instructor assistance is made available throughout the ideal online course; however, to the extent that independent learning is both the means

and an important goal of instruction, clear descriptions and directions are imperative within the online study guide. (p.149)

The online study guide may contain a course calendar with important activities and assignments, along with timelines. The guide may also include contact information for the instructor, a course overview, a course description, an explanation of the course organization, course requirements, and the grading policy. The study guide often provides links for the students to course readings, areas for journaling and posting, rubrics for projects, and other information pertinent to the course (Doyle, 2002). A study guide should be continually updated and evaluated so that it gives the learner complete and accurate information. It is important to make sure that links are active and up-to-date.

It is important for the online instructor to be aware of the extra time an online course requires. There are ways for instructors to provide some control of the time involved, such as guidelines for postings and responses. "Online instruction is more time intensive and requires more continuous attention in order to provide timely responses to student needs than does traditional presential instruction. Faculty loads must be totally reconsidered in this new form of education. There is no simple guideline for this process, but it is something to be carefully considered and studied in order to free the instructor to truly teach the ideal online course" (Carr-

Chellman & Duchastel, 2001, p. 151). The time factor is an important one and should be considered by the instructor when designing the course.

As instructors begin teaching online courses and adding new technologies to their instruction, they are enhancing what they are all ready doing in a traditional classroom. "Technologies in and of themselves do not automatically change the nature of teaching and learning; rather, it is the way educators integrate such technologies into the curriculum that brings about change. The role of the instructor is changed because the technological medium forces educators to develop learner-based environments" (Schmidt & Stammnen, 2001, p.47). The instructor's role is a critical component of providing quality online instruction.

Each instructor's situation is unique and it is important that he or she feels confident to teach an online course. Confidence for teaching an online course may be developed through extensive training, different types of support systems for the instructors, or easing themselves into the process.

Learner's needs and learning styles

Distance education works well for some learners and others find it to be a challenge. Learners need to be aware of what it takes to be a

successful distance education student so that they can consider carefully whether or not to pursue online distance education courses.

There are certain attributes that many successful online learners possess.

Students who had achieved higher levels of education, who had higher grade point averages, or who had already successfully completed a distance learning course were more likely to succeed. Other factors such as motivation, academic integration, locus of control, and social integration contribute to student success.

(Picciano, 2001, p.105)

It is important for students to be aware of the traits that contribute to being a successful online learner so that they are not discouraged if they enroll in an online course and find that they are having a difficult time with it. Online learning may not fit some student's learning styles.

Student learning styles are important considerations when taking an online course. Auditory learners may find an online course to be a challenge. "They (instructors) can encourage auditory learners to purchase dictation software that converts their voice to text" (Howell, 2001, p.93). This would be a technology that students might consider if they feel that online courses are their only option and they feel strongly that they need the auditory component.

Moore, Lockee, & Burton's (2002) study confirms what Picciano (2001) noted about the necessity of students being motivated when taking online courses. Moore, Lockee, & Burton (2002) stated:

Some students were not motivated, some were easily distracted and needed more structure (as in regular classroom), and others were not particularly good at managing their learning and instructional time. We found that some students had the perception when beginning an online class that these types of classes would be easier than regular on-campus classes. In addition, students soon found that they had to trade some level of access to an instructor for the advantage of their personal learning time convenience. We have also learned that interaction is important but that the interaction does not necessarily have to be with the instructor. (p. 31)

It is also important for instructors to know their learners. "Distance learning primarily attracts women with children. Sixty-six percent of the adult distance education market is female, and 80% of them have children" (Bremmer, 1998, as cited in Matthews, 1999, para. 20). Instructors need to consider that the majority of their students may have special needs based on their background and circumstances.

It has also been found that most distance education learners are already working, either part-time or full-time and time-management is a concern for them (Carr-Chellman & Duchastel, 2001; Guernsey, 1998, as cited in Matthews, 1999). There are a number of reasons students may select distance education. "Benefits to the student include: increased access to higher education (particularly for the nontraditional student), flexible scheduling of personal time, convenient location, individualized attention by the instructor, less travel, and increased time to think about, and respond to (via e-mail or discussion boards), questions posed by the instructor" (Matthews, 1999, para. 23). Instructors need to be aware of factors that motivate students to take online courses so that they are able to understand their learner's needs. "A major reason for providing Internet-based learning was to provide a convenience for students" (Picciano, 2001, p.99). The benefits of distance education for students and the reasons students choose to pursue distance education are often based on convenience. The students want to pursue their education but need to be able to do that within the structure of their current lifestyle. Students are willing to put in the time required for the courses, but they want to be able to fit the course into their current schedules.

Picciano (2001) noted that students believe more time is required of an online course than for a course in a traditional setting (p. 99). Students

in distance education do not have to trade-off quality for convenience. "No significant difference in learner achievement between the two modes. In most studies, distance learners appear to perform as well as traditional learners" (Moore and Cozine, 2000, p. 2). Time is a concern for online learners. One study by the Corporate University Xchange found that lack of time was a major reason students dropped online courses (Howell, 2001). The time factor for online courses can be seen as both an advantage and disadvantage for learners. It is important to build flexibility into an online course, so that students will find that the benefits outweigh the disadvantages, particularly in reference to the time issues.

One concern that has not been fully addressed for distance education learners is the level of interaction that distance education provides. Timely feedback is important for students. Each instructor must consider how they can give students timely feedback and assistance in a course that may be attended twenty-four hours a day, seven days a week. (Moore & Cozine, 2000; Hall, 1995, as cited in Matthews, 1999).

Distance education has brought about changes for learners that are advantageous in many ways and have even contributed to a change in focus in education. "Distance education employs a set of technologies that will enable a fundamental change in pedagogy to focus more on the learning process. This change is a desirable goal even in the traditional

academic setting” (Strong & Harmon, 1997, as cited in Moore & Cozine, 2000, p.121-122). Distance learners will continue to contribute to the changes in distance education and education as they pursue their studies.

Resources and technologies

On-line courses are becoming a popular way of delivering distance education courses. “Distance education is one of the fastest growing developments in higher education. Seventy percent of the nation’s 4,000 two—and four-year colleges offered online courses in 2000, up from 48 percent in 1998, according to the Market Retrieval Service” (“New AFT report,” 2001, para. 6). Instructors will need to decide if they have the expertise to design a course from the very beginning or if they prefer to use commercial software for the structure of the course.

Even if the instructor has the expertise to design the format of the course online, he or she may want to use commercial software to assist in the design. Some of the software available to help tool on-line courses include:

WebURL is a WWW-based bulletin board designed to enable students to share relevant uniform resource locators (URLs)....WebFAQ, the tool that operates through a dynamic bulletin board to which learners can post material to be shared with others....RonSUB is an online learning environment designed to

support collaborative problem-based learning....WebPOST is an online debating tool. (Oliver, 1999, p.244-248)

Instructors might not have the expertise or technology support to design their on-line courses and for those instructors there are course-in-a-box software packages. O'Sullivan (1999) suggests:

In the arena of course-in-a-box software there are two different theoretical frameworks out of which the software is developed. One results in an emphasis on independent tutorial; the other, while it may employ some tutorial material, is focused on supporting students as they interact with the course material, their classmates and the instructor. (p.66)

There are also programs that take the course-in-a-box a step further and offer virtual campuses. O'Sullivan (1999) continues with her discussion:

REAL (Real Education Active Learning) sets up a total online campus with a course catalogue, academic calendar, degree information, student inquiry form, application form, and course registration as well as individual virtual classrooms for courses. The resulting site resides on the Real Education server. The product is impressive; it uses streaming audio and video, synchronous chat, asynchronous threaded discussion, and internal

e-mail. If ease of site creation is a major issue then perhaps TopClass or WebCT might be chosen to facilitate such an endeavor and be worth the licensing costs. Or if an educational institution simply wants to make a free resource available to faculty, it might turn to Web Course in a Box (WCB). Finally, college technical personnel might create in-house, course-in-a-box software. (p.64)

The Internet has often been used as a supplemental technology in distance education courses and is now coming into its own as a technology that can deliver courses, with a wide variety of media at its disposal. Clark and Else (1998) state that:

The Internet is the information highway. For the foreseeable future, the World Wide Web, the Internet's key component, is likely to serve as an umbrella technology uniting distance education media for distributed learning. Applications such as desktop video allow low cost individual videoconferencing between computers on the Internet. Statewide computer networks with combined audio, video, and data capabilities are replacing earlier dial-up demonstration projects and connecting small regional video networks. Many nonprofit consortia are forming, locally to globally, to use the Internet to provide educational opportunities. (p.18)

The Internet is an indispensable tool to use in education. "The power of the World Wide Web is communication and any course-in-a-box that does not exploit the communication possibilities is severely handicapping the educational endeavor" (O'Sullivan, 1999, p.65). The Internet is able to allow instructors to incorporate many technologies into an online course, so that the course can go beyond email and information gathering. "An effective online class uses a variety of media and teaching strategies to take advantage of the power and versatility of the Internet and related Web tools" (Clark, Fredrickson & Hoehner, 2002, p.7). The current Internet capabilities offer instructors many tools to work with and allows them the ability to offer their learners instruction that meets their many learning styles.

Conclusion

Online education continues to develop and its use is growing. More studies regarding online education are being done and as this happens, educators are able to sort out what works and what does not with more ease, since they have the experience of others to build on.

Four important areas to focus on when considering what contributes to a successful online course are administrative planning and support; staff development and support; learner's needs and learning styles; and resources and technologies. There are factors in each of

these areas that contribute to the success of an online program and many of these factors overlap.

Budgetary concerns overlap into the four areas of administration, staff, learners, and resources. Administrators must be willing to budget for the start-up costs of online courses and fund the upgrades needed. Often the technologies and resources are the most expensive of the costs. Administrators must also be willing to fund training for staff and students if necessary for online courses. When administrators adequately fund online courses, instructors will be impacted less by the budget, but they will be challenged to incorporate old and new technologies as technologies change. Instructors will need to be able to justify the new technologies to the administrators for expense purposes. Learners may find that the cost of online instruction is the same as traditional instruction or they may find costs increasing as institutions work to keep up with the latest technologies. Learners must also be prepared for the cost of furnishing their own equipment to take part in online courses.

Training and support are areas that touch each group involved in providing online courses. Administrators must be aware of what is involved to successfully offer online courses and they must again be willing to support the training of the staff and if necessary the students. It is also important to have trained technology support staff.

There must be good technology support for staff, so that they are able to focus on instruction and be able to call on experts if there are problems with the technology that they are using. Learners also need to have technology support available if they have questions or problems. The learners are often able to go through their instructors, who will go to the technology support staff when necessary. Administrators need to have the support of the instructors to know what is needed by them to offer quality online courses.

Student's learning styles must be considered when offering online courses. It is important for students to be aware of their own needs and learning styles to know if they will be successful with online coursework. Instructors need to be very aware of what qualities an online learner should possess to be successful and be supportive of those learners that might find online courses difficult. The technologies used in online courses may help overcome some of the problems that students have, if an instructor is able to determine what the student needs to be successful.

Interaction and feedback are concerns that affect both the instructors and the students in online courses. "The essence of learning is human interaction, which can create a positive social impact resulting from the widespread adoption of information technologies" (Stammen, 1995, as cited in Schmidt & Stammen, 2001, p.48). The technologies that are

developing are making it easier to make sure that students have interaction in an online course. It is important that the instructor make provisions for interaction between the students and other students and the students and the instructor in the course design.

Time is another factor that affects the different components of online instruction. It is important for the instructor to design the course so that some time restrictions are built into the course to provide organization. Students and instructors must make accommodations for the fact that online courses are available twenty-four hours a day, seven days a week. Timely feedback from the instructor is important in an online course and guidelines for what a student may expect should probably be built into the organization of the course. It needs to be remembered that most students are involved in online courses because of the convenience that they offer and this means different things to different students. Some students may focus their day time hours on their coursework, others may choose to work in the evenings and others may find that they have to do most of their work on the weekends.

Current technologies are very important in offering online coursework, but an online course does not necessarily need to restrict itself to web-based materials. "It is important to remember that not all elements of an online course need to be, or probably should be, physically

available online. In most cases, a traditional textbook is appropriately provided for the student to study throughout a course” (Carr-Schellman & Duchastel, 2001, p.146). There are many options available when designing an online course and they should be explored to give the student the best experience possible.

There are many considerations when offering successful online courses. “The next wave of development for online courses is to make them more personalized for individual students” (Howell, 2001, p.92). All components that are involved in offering online courses will continue to be challenged by the new technologies that are developed in the future.

As the literature suggests, many types of technologies are being combined to provide the best possible experience for the learner. Synchronous distance education classes have come very near to emulating the traditional classroom, when using a variety of technologies. Asynchronous distance education is a very formidable method of teaching, when solid instructional design is incorporated into the planning of the course. “It’s one thing to learn how to use the technology and quite another to use it well” (Hodgson, 1999, para.7). Synchronous and asynchronous distance education will continue to evolve as technologies evolve, but there is solid evidence to show that the technologies of today support distance education in a positive manner.

Despite the obstacles that come up with the different technologies incorporated into distance education, the concept of distance education continues to evolve. New technologies are being created every day and those that lend themselves to distance education will certainly be incorporated into it. "Web-based and Web-supported courses, especially when used to deliver distance education, offer us new possibilities in combining traditional academic goals with the need to introduce our students to the tools and practices they need to be successful in the workplace" (Thrush & Young, 1999, p.56).

The future holds many possibilities for online coursework. One of the technologies that may be available soon for online education is Internet2. The site for Internet2 states its purpose and objectives:

Internet2 is a consortium being led by over 190 universities working in partnership with industry and government to develop and deploy advanced network applications and technologies, accelerating the creation of tomorrow's Internet. Internet2 is recreating the partnership among academia, industry and government that fostered today's Internet in its infancy. The primary goals of Internet2 are to: create a leading edge network capability for the national research community; enable revolutionary Internet applications; and ensure the rapid transfer of new network services

and applications to the broader Internet university. (Internet2, 2002a, para. 2)

Internet2 may take online courses to a new level. "More than a faster Web or email, these technologies will enable completely new applications such as digital libraries, virtual laboratories, distance-independent learning and tele-immersion" (Internet2, 2002b, para.3). Internet2 seems to hold the future for online courses and the administrators, instructors, and students involved in them.

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